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The Clinical Psychologist In The Habilitation Of The Cleft Palate Patient

A. L. Ruess

Judging from the number of reports in the literature, there is apparently a dearth of psychological studies concerning the individual with cleft lip, cleft palate, or both. This is not to imply, however, that there has been no interest about the effects which this anomaly may have on personality formation and social functioning. Many persons concerned fundamentally with other aspects of cleft palate habilitation have called attention to the psychological implications as one of the multi-dimensions of the overall problem (*9, 17, 25, 26, 33*). Yet, one cannot expect co-workers in other disciplines to investigate the complex of psychological factors related to cleft palate. The fact that many non-psychologists have pointed out the importance of the psychological dimension should, in itself, provide an impetus and a lead for those who have the training and background to provide the fundamental psychological research needed in this particular area of habilitation.

This paper attempts to present some of the basic psychological problems of the cleft palate patient and some of the functions of the clinical psychologist on the habilitation team. At best, a broad survey of the problem is presented, and no attempt is made to deal with all the psychological problems related to cleft palate. The point of view presented and the issues raised are a result of the writer's experiences with children and adolescents who are patients at the University of Illinois Cleft Palate Clinic. (The term 'cleft palate' is used generically in this paper to include all conditions of cleft palate, cleft lip, or both, unless otherwise specified.) Justification for calling attention to the problem rests on four fundamental considerations: (1) It has been estimated on the basis of existing statistics that approximately 5000 births with cleft palate occurred in the United States in 1952 (*29*). Cumulatively, and assuming the yearly incidence to remain static in the future, this would mean 100,000 cleft-palate births in the next 20 years—the equivalence of the total population of a medium-sized city in the United States. Fortunately, not all of these children will be considered 'handi-

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capped' as a result of this congenital condition, and many will be habilitated with a high degree of success. (2) It has been stated by Lis, Pruzansky, Koepp-Baker and Kobes: 'Cleft lip and cleft palate offer a degree of habilitativeness that is not shared by many other equally serious congenital or acquired handicaps' (*17*). Or, as Westlake stated: 'Probably no handicap appears worse than a cleft palate in a newborn child; but no other problem can be dealt with so readily at such relatively small cost' (*34*). (3) Of all the dimensions of personality necessary for satisfactory and successful social interaction, facial configuration and oral communication are probably two of the most important. 'Abnormality' of either may lead to social and personal maladjustment. (4) The long-term needs of many cleft palate patients require relatively large expenditures of money, time and effort which could undoubtedly be reduced to a minimum through better understanding of the psychological factors working to impair or enhance the habilitation.

Cleft Palate Team

The factors responsible for the absence of the clinical psychologist on the cleft palate team are related to the historical development of this habilitative unit. Organized, professional interest in the handicapped individual, *per se*, has been of relatively recent origin. According to Bluestone and Deaver (*3*), rehabilitation as a modern concept is credited to Dr. Edgar J. Helm, founder of the Goodwill Industries in Boston in 1905. Since that time, there has been an amazing growth of various organizations, both professional and lay, devoted to the task of enhancing the functioning and adjustment of disabled persons in the areas of medical, social, vocational and psychological rehabilitation. It was not until 1943, however, that a national organization for cleft palate habilitation was founded: The American Academy of Cleft Palate Prosthesis (*27*). This organization broadened its scope of functions in 1949 and in keeping with its change of interests was renamed: The American Association for Cleft Palate Rehabilitation (*23*).

It is not surprising, therefore, that the clinical psychologist has been a latecomer. With the advent of the cleft palate team only *yesterday* it was imperative that the basic disciplines on the team—pediatrics, surgery, dentistry and speech therapy—be given the time to consolidate their understanding and their knowledge of the problem, the basic techniques involved and the inter-relationship of the various therapies before new members could be included. This period of growth made it possible to develop a degree of sophistication and insight through which the social and psychological problems of the cleft palate patient came more clearly into focus. At this point the clinical psychologist came onto the scene as a team member.

Basic to the present-day concept of rehabilitation is the team, or multidiscipline, approach (*3, 6, 13, 16, 26, 30*). Laguaite (*15*) suggests that an integrated approach to cleft palate habilitation should include members from the following disciplines: pediatrics, surgery, dentistry, speech therapy, otolaryngology, social service and psychology. Whether or not all of these disciplines are integrated on any given cleft palate team depends on the availability of the various professional personnel and their willing-

ness to participate, the scope of the program and the philosophy of the group. One cleft palate group, at least, is known to have a psychiatrist as an integrated member of the staff. Undoubtedly, the services of other professional personnel, not integral members of the team, are prerequisites for the adequate planning and treatment of some patients. Psychological services may be required for a comprehensive understanding of the anomaly relative to the patients' total functioning. Logically, the quantity and quality of psychological services are dependent on the familiarity and experience of the psychologist with cleft palate patients. Thus, the clinician who functions as part of the team is in a more advantageous position to understand the problems unique to this anomaly than is the clinician who is utilized as an 'outside referral source' whenever there is a question of intellectual functioning, emotional disturbance or other suspected psychopathology which needs clarification before further decisions for habilitation can be made by the staff.

Not only does the team psychologist gain greater insight and understanding of the psycho-dynamics of the cleft palate individual through team interaction, but conversely, the psychologist through his contributions enhances his co-workers' understanding of the 'whole' patient. The efficiency of the team undoubtedly revolves around the nature of this interaction. In fact, a postulate concerning the group dynamics of the habilitation team might be stated to the effect that the efficiency of the team, within the limits imposed by individual competency and knowledge of the phenomena, is directly proportional to each member's understanding and tolerance of the other team disciplines.

Handicap of Cleft Lip and Cleft Palate

Is the child born with a cleft lip, cleft palate, or both to be considered a *handicapped child?* To answer this question a number of factors must first be clarified. Anyone even superficially acquainted with the vast literature on habilitation and rehabilitation is aware that such terms as physical disability, physical anomaly, physical impairment and physical handicap are not always used with the same meaning and connotation. Their meaning often depends on the context in which they are used. Nor is it uncommon to find the terms used interchangeably by the same writer. Others act *as if* everyone understands the meaning of their definition through common usage. Harkins and Nitsche (*9*), for example, consider the cleft palate child to be 'crippled,' and point out that such children were subsumed under this category by specific reference at the White House Conference of 1940. The problem of terminology, definition, or semantics in the attempt to delimit a given phenomenon is surely not unique to the area of cleft palate. An excellent discussion by Kurland (*14*) indicates quite clearly that there is no clear-cut agreement in regard to a definition of the complex known as cerebral palsy and its many variations.

It has, apparently, become common in recent years to make the distinction between a physical disability and a physical handicap: 'A disability is seen as an impairment having an objective or medical aspect, while a handicap is seen as an impairment in a particular kind of social and psychological behavior' (21). However, since an 'objective disability' may be associated with varying social expectations, depending on the cultural setting in

which the disability occurs, Myerson (*21*) has pointed out that the dichotomy possesses limited utility as a universal distinction for delimiting a definition of handicap. Myerson presents a criterion of handicap which emphasizes social interaction and the reciprocal effects of this interaction on the individual. For the cleft palate individual there are two possible dimensions most likely to affect his social interaction and, in effect, impose a handicap: inadequate speech and facial disfigurement. Varying degrees of either one, or both, may be present. With the cleft palate infant or child there are also biological or 'purely personal' aspects, *i.e.*, functions that only the individual organism can perform regardless of the cultural milieu, which may impose a handicap. The most common of these, of course, is the handicap in the feeding of infants or children with a cleft of the lip and/or hard palate. Fortunately, these 'personal' handicaps of cleft palate can often be corrected at an early age (*32*) so that the major aspects of the handicap of cleft palate are essentially socio-psychological in nature. There are, in addition, a host of problems associated with the 'oral' development of the individual and the possibility of personality maldevelopment due to the trauma of early operations in the mouth area to which the cleft palate child might be prone; however, it is beyond the scope of this paper to examine these complexities. The reader is referred to Prugh's (*24*) recent survey of the psychological and physiological developmental aspects of oral activities in infancy and childhood and their inter-related problems.

The human organism is a socio-bio-psychological interdependent unit, never static in time and place, and constantly undergoing physiological and psychological changes. These four variables are the *sine qua non* upon which personality must be evaluated. And for no two individuals will they be exactly the same. If we place the dual criteria for handicap (adequacy of social interaction and the ability to fulfill personal functions) on this ever-changing frame of reference (time, place, physiological status and psychological status) it can be seen that an almost infinite number of personality configurations are theoretically possible. Consider child A born with a unilateral cleft of the lip and the hard and soft palate. Before closure of the lip by surgical procedure at three months, the child is extremely handicapped in feeding. Closure of the lip ameliorates the feeding problem to some degree; but it is not until the age of three years, when successful closure of the hard and soft palate occurs, that the child is able to overcome completely the problem of feeding. The closure of the palate has also made it possible to reduce nasality in speech, and for all practical purposes the child develops moderately adequate speech. A's parents are upper-middle class, professional persons and have many feelings of guilt, disappointment, and anxiety about the child. Their main defense is one of denial, and they discourage discussing or calling attention to the post-operative lip in spite of the child's curiosity and at times endless questions about this area of his body. During the preschool years, A handles his developmental tasks well and shows good social adjustment. When entering school at the age of six years, the questions and behavior of his peers in regard to his lip make him aware that he is *different* from them. Also, there is an increased social demand for greater intelligibility of speech in

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the school setting. In spite of corrective measures taken, such as speech therapy and the use of a prosthesis, the nasality cannot be diminished below a certain minimal point and continues through the middle years of development. Since the social-class environment of this child places a high premium on verbal facility, the child finds himself excluded from certain activities requiring this skill; the reactions and behavior of peers and teachers communicate to him quite effectively that he is handicapped, *i.e.*, his social interaction is limited. Increased concern by the parents heightens the feelings of inadequacy. The onset of adolescence with its emphasis on the physical and social aspects of personality bring an acute awareness of the mild deformity of the upper lip and the inadequacy of speech, thus adding an additional hazard to an already inadequate personality. The inability to fulfill the social expectations of the cultural group has indeed circumscribed the range of functioning of this individual and for this reason he is handicapped.

On the other hand, consider child B who has the same objective degree of physical anomaly, goes through the same development in regard to feeding and speech and at adolescence shows the same degree of facial disfigurement and quality of speech. Yet, because B is a member of the lower social class and his parents are semi-skilled workers, the social expectations and values may be quite different. No premium is placed on verbal facility; in fact, it may be devalued in this cultural environment. The 'socialized anxiety' (*25*) associated with the development tasks at each age may be quite different from the case of A. Consequently, at adolescence B is able to fulfill the group expectations with less anxiety and stress. It is possible, of course, that B may be considered handicapped by the 'middle-class' employer and may have difficulty in making an adequate vocational adjustment. Or again, the lower class individual through the process of social-class mobility over a period of time may take on the values and behavior of a higher social class and in so doing find himself to be handicapped because of a unique personality factor(s) that takes on new meaning in a different socio-psychological setting.

The examples given above are highly simplified and were differentiated on the basis of broad generalizations in terms of social class. These two illustrations are, in essence, stereotypes. It is not to be thought, moreover, that the lower-class parent is necessarily any less anxious or defensive, less concerned about speech or facial disfigurement than is the middle-class parent or, for that matter, any parent of a child with a cleft palate. The circumstances in any given case may be highly variable. Considering the cleft palate individual on a time continuum, the verdict of handicap at any given point may be temporary, permanent or indeterminate. And the ability to predict an individual's status at some future point is contingent upon past and present status. The problem of prediction, although extremely important for any scientific discipline, apparently cannot be handled with a high degree of accuracy at this stage of the development of cleft palate habilitation, especially at the lower age levels.

To answer the original question of whether or not the cleft palate individual is handicapped, the rationale presented above suggests that the term handicap can, within reasonable limits,

be objectively defined and applied in any given case. Moreover, a cleft palate or any residual of the original somatic defect is not an invariable correlate of a status of handicap. It suggests, also, that skillful analysis and specific data are necessary to make a valid judgment.

Psychological Aspects of the Cleft Palate Patient

It is relatively easier to see objectively the kind and degree of cleft palates than it is to *see* and know the psychodynamics of the individuals who possess them. In the past decade it has become common to read about the 'psychological characteristics' of the deaf, blind, cerebral palsy, amputees and numerous other groups with physical defects both congenital and acquired (*1*, *4*, *8*). There is no denying that the generalizations from these studies are valuable and indeed even necessary. Barker, Wright and Gouick (*1*) point out, for instance, that physically handicapped persons show a greater incidence of maladjusted behavior than do non-physically handicapped persons. The kinds of maladjustment are qualitatively similar to those found in persons without physical handicaps. Yet, one cannot proceed on the premise that a particular handicap, *per se*, leads to a specific kind of psychological maladjustment or impairment. Nor does it follow that *any* specific characteristics, positive or negative, are necessarily related to a physical disability.

Are there any unique psychological characteristics associated with cleft palate? On the basis of existing evidence an unequivocal 'no' must be given. It seems feasible to proceed on the assumption that cleft palate individuals, as a group, possess the same psychological characteristics found in any randomly selected sample of the general population. That is, the expectations are that the same approximate percentages of mental retardation, emotional disturbance, behavior disorders, school problems, giftedness, *etc.*, are to be found in the cleft palate population as in the general population. This assumption, of course, may be quite erroneous; but in the absence of evidence to the contrary, it is frivolous to proceed on any other assumption. It has been the writer's impression on the basis of clinical examinations that cleft palate children seem to have greater difficulty in the use of language (other than speech) and have less well developed body-image concepts than would be expected among the general population with similar characteristics of age, sex, intelligence, years of schooling and social-class status.[1] Whether these two variables have significant cause-and-effect relationships associated with a cleft palate cannot readily be determined in the absence of a controlled investigation. Numerous children without cleft palates—in fact, without any physical defects—are known to have deficiencies in one or more areas of language functioning and to have, also, deficient body-image concepts.

Munson and May (*20*) made a random selection of 151 cases from the Cleft Palate Clinic in Lancaster, Pennsylvania. On the basis of the results on the Wechsler-Bellevue Intelligence Scale and the Revised Stanford-Binet Intelligence Scale, 1937, they report that only 63 per cent of the samples were within the 'normal or above'

[1] A study is now being conducted at the University of Illinois Cleft Palate Clinic to test two hypotheses concerning (1) the language development (excluding speech) and (2) the body-image concepts of children with cleft palate.

range of intelligence. They report, also, that the sample was biased in that it contained a disproportionately small number of 'white collar workers' and a disproportionately high number of rural subjects in comparison with the known population characteristics of Pennsylvania. Using Wechsler's classification of intelligence, 30 subjects (approximately 20 per cent) were found to be 'dull normal' and 19 subjects (approximately 13 per cent) were 'mentally deficient.' Unfortunately, no other important characteristics of this sample are presented, *e.g.*, age, sex, years of schooling, intelligibility of speech, nature of cleft, *etc.*, from which inferences might be drawn to explain the results. Billig (2) reported his psychological findings in regard to intelligence and 'personality adjustment' on a series of 60 patients seen at the Cleft Palate Clinic at Allentown, Pennsylvania, during 1950-51. The group ranged in age from two months to 17 years and consisted of both sexes, but no data are presented in regard to sex and age distribution, socio-economic status, severity of cleft, intelligibility of speech or other systematic data pertinent to facilitating a clearer understanding of the results. Range of IQ's was from 64 to 130 with a mean of 94 and a median of 97. From the data presented, it is noted that the intelligence curve for this sample tends to approach normality but is skewed toward the lower end. There is some question concerning the validity of the IQ scores, especially since the data presented by Billig is derived from eight different intelligence tests; the assumption of equivalence of intelligence test scores is questionable. Each patient was rated for personality adjustment on a scale with five categories: Unsatisfactory, Fair, Normal, Good, Superior. The majority, 58 per cent, were rated Normal or better; thus 42 per cent had below normal adjustments on this scale. The five per cent classified as Unsatisfactory were adolescents 'who had evidence of scarring and noticeably defective speech.' Assuming that both the level of intelligence and the adjustment evaluations of these subjects are valid, it is revealing to note that 68 per cent of the patients with an IQ of 90 or above were rated Normal or better; whereas, only 40 per cent of the patients with an IQ of 89 or below were rated Normal or above. This, of course, suggests that personality adjustment might, to a large degree, be a function of intellectual ability in this group. On the basis of these data it is difficult to see the author's justification for stating in his summary: 'When not complicated by additional physical disability the cleft palate patient is felt to be basically a normal individual possessing a specific physical handicap' (2). It is this writer's opinion that neither of these studies represents an unbiased and representative sample of the cleft palate population and that because of the lack of adequate experimental controls no valid conclusions can be drawn from the results presented.

A study by Sidney and Matthews (*31*) attempted to assess the social adjustment of cleft palate children. The experimental group consisted of 21 children with cleft palate. (The cleft palate status of the subjects is not given.) Two control groups were employed, and the children from each of the three groups were matched as closely as possible in regard to sex, age, color, intelligence and school grade placement. The following instruments were used: a sociometric questionnaire, the California Personality Test, the Thematic Apperception Test, the Teachers Rating Scale and

the Vineland Social Maturity Scale. Unfortunately, the published report of this study presents no objective data, though it is stated that the results show no consistent trends in the groups. It is pertinent to note: 'The data do not lend support to the assumption that the social adjustment of cleft palate children is markedly inferior to that of other children' (31).

Kahn (*10*) has called attention to some of the psychological problems related to surgery on the pre-school cleft palate child. These are concerned with separation anxiety, the fantasies which the operation may stimulate due to the child's limited ability to test reality, the child's confusion about his own anatomy, the mother's fears and anxieties and the possible long-term emotional problems that may result from an operation on physiological mechanisms that are an integral part of such vital body functions as breathing and eating. Kinnis (*12*) discusses some of the feelings of uncertainty, fear and anxiety of the mother of a cleft palate child; also, the role that these attitudes and feelings of the parents play in the home and family atmosphere in which the child's own attitudes and feelings are developed.

The excellent medico-social study made by Macgregor and her colleagues (*19*) suggests that adolescents and adults with facial deformities associated with cleft lip and palate may have a greater incidence of psychosocial maladjustment than has previously been suspected. All of the subjects in this study were classified according to the degree of the deformity; there were four classifications. In the group classified as 'mildly deformed' were some subjects with cleft lip facial deformities. Psychological, social, and psychiatric analyses indicated that in this group, more than in the other three groups, the deformity was used as a complaint to cover up deeper, underlying personality difficulties.

The foregoing studies raise important questions about the personality formation and personality characteristics of the cleft palate child, adolescent and adult. However, it cannot be inferred that the questions raised are unique to the cleft palate individual. Many parents of children with widely varying congenital deformities are known to have feelings of guilt, frustration, rejection and anxiety. And many young children undergoing surgery have separation anxiety, threatening fantasies and confusions regarding their own anatomy. Essentially, the question which must be answered is: What are the significant personality parameters of the individual with cleft lip, cleft palate or both? Perhaps, it will be found from a scientific point of view that the psychological problems are more apparent than real.

Criteria for Psychological Services

At the University of Illinois Cleft Palate Clinic routine psychological examinations are not made. The rationale for this is based on several factors: (1) It is the assumption of this clinic that the major psychological characteristics of the clinic population are similar to the general population. This assumption has been demonstrated clinically to be valid, for the most part, over the years the Clinic has been in operation. (2) Because of the number of cases handled and the minimal availability of clinical psychologists, it is not possible to have every patient routinely examined. (3) For many of the patients, especially those of school age, clinical data are often available;

hence, it may be a waste of time and effort to duplicate the information available. These data are available to the Clinic from two major sources: examinations made by school psychologists in the child's school district and psychological reports from the Summer Speech Centers in Illinois.[2] However, data from these various sources may vary in quality and may not be relevant to the suspected difficulty presented in the Clinic. Occasionally it is necessary to supplement the available information by further examination.

For about half of the patients no clinical information is available from these sources. In view of this fact it might be asked: What are the criteria used to determine when psychological evaluation is indicated? Fortunately, nearly all the members of the staff are child-oriented and have a high degree of awareness of some of the potential psychological implications of cleft palate. Three staff members who possess the greatest ability in detecting psychological problems are: the pediatrician, the social case-worker and the speech pathologist. Each new patient is seen by these staff members and again on subsequent visits. Although there are no invariable indicators pointing to possible psychological difficulties, certain sources of information are often good indices: school progress, parental interview, general physical and social development, observed behavior in the clinic by the various personnel and the rate of progress shown by the patient relative to the therapies received.

School-grade placement and rate of school progress can be a good rule of thumb. Children several years or more below their expected chronological age grade placement should immediately prompt the inquirer to determine why. At times, a child will be found who is several years below the expected grade level, but further inquiry reveals that the child was excluded from school for one or more years because of unintelligible speech, yet when admitted at a later age the child made satisfactory progress. There may be a problem of hearing, past or present, due to otitis media. Problems of reading may be interfering with school progress; they may or may not be related to the cleft palate complex. Caution must be used in relying upon this index due to the fact that some children have grade placements far above their ability to achieve in the grade attended. This is especially true in some areas where a shortage of classrooms and teachers exists, and the child is promoted regardless of achievement. Other children may be advanced from year to year for 'social' reasons.

The parental interview, when skillfully conducted, can be an extremely valuable source of information in understanding the child. The family constellation, economic status, parental expectations and demands, pressures put on the child, acceptance or rejection by parents or siblings, developmental problems, peer relationships, social development and behavioral symptoms indicating emotional disturbance are factors secured through the social interview which are invaluable in rounding out a picture of the total child. When the mother of a four-year-old, for ex-

[2] A large percentage of the children seen in the Clinic are sent to the Summer Speech Centers conducted under the auspices of the six State Teachers Colleges throughout the State of Illinois. These are intensive six-week programs designed to improve speech through individual and group therapies. The children remain at the Centers during the entire six weeks.

ample, is interviewed initially and is unable to provide the information necessary for a developmental history of the child or gives contradictory evidence, the interviewer should have his suspicions aroused. Is the mother rejecting this child? Is she perhaps mentally deficient or a disturbed parent? Or is she perhaps over-anxious or upset because of any number of other reasons at the time of the interview? In establishing the child's level of present functioning it is important to distinguish between what the child is reported to do and what he does. That is, the actual repertoire of behavior is more important in understanding the child's level of functioning than in knowing what the parent thinks the child can do. The latter, however, is sometimes a good index of the parents' ability to see the child realistically. Some parents in their anxiety to see him as a 'normal' child project into the child's behavior far more than is warranted.

Physical development and the presence of other defects are best detected, of course, by the pediatrician. Knowledge of the 'normal' range of the multiple developmental variables enables him to assess the child in terms of expectations. The presence of any sensory impairments, indications of neurological anomalies and other somatic dysfunctions are important in understanding the child's psychological functioning. The psychiatrically-oriented pediatrician will also be cognizant of behavioral symptoms both observed and reported. Assessment of the child by the speech pathologist with his training and experience in the physiological and psychological aspects of speech often provides important leads indicating a more refined analysis of psychological variables is needed for a thorough understanding of the speech problems. Vocabulary, sentence structure, amount of gesture and pantomime used are often important prognosticators. Articulatory problems, as indicated by McDonald and Koepp-Baker (*18*), may or may not be primarily related to unintelligible speech in a given cleft palate patient. The use of an extreme amount of pantomime and gesture for communication can be a significant evaluative dimension. For a young child with unintelligible speech this might represent highly intelligent and adaptive behavior, but for an older child it might represent a failure to utilize the personality resources more effectively due to psychogenic factors or to lack of environmental stimulation and encouragement. Where the major criterion for success or failure in habilitation is the degree of change in speech intelligibility, the speech pathologist is indeed a key member of the habilitative group; and like other members of the team he is constantly attempting to understand each patient in relation to the cause and effect of a maze of inter-related variables among which the psychological dimensions may play a crucial role.

All of the team members in the course of their individual relationships with the patient are in a position to observe and evaluate. With children one can expect a varying amount of anxiety and fear, often depending on the age and experience of the child. There is no doubt that many of the evaluative and therapeutic procedures are frightening and painful to many children. Time spent explaining to the child, when he is capable of understanding, what is to be done and what he can expect may be time well spent and often is an aid in raising the child's level of tolerance for unpleasant experiences. The reactions of children

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are highly variable. One eight-year-old boy was observed explaining to his sister quite proudly, 'Wow, you should have seen what they did to me!' Children who are consistently withdrawn, fearful and resistive even after many visits to the clinic, during which time they have had a chance to anticipate and to test the reality of the situation, may have some underlying personality disturbance that should be investigated further.

This brief survey of factors which often point to psychological difficulties is surely not exhaustive. Nor are any of the factors alone, or in combination, infallible prognosticators. There have been cases in which there were no contraindications of the therapies recommended; yet after two or three years the gains were far below expectations. Re-evaluation at staff conferences revealed, in retrospect, that certain subtle and elusive conditions were operating to impair the habilitation, *e.g.*, some degree of mental retardation, lack of motivation on the part of the child, emotional disturbance due to environmental changes such as separation of parents, and other factors. Unpredictable physiological changes may account for a lack of progress, too, with or without the presence of a significant psychological component. Fortunately, such situations are not the rule, but at the present stage of cleft palate habilitation it seems inevitable that a certain percentage of such cases will occur.

Insights and information provided by the other team members may indicate the need for complete psychological evaluation or the investigation of specific personality characteristics. In some cases, the problem can be clarified through discussion, and the alleged difficulty can be viewed in proper perspective through team interaction. Some cases present an obvious need for psychological evaluation. The psychologist may disagree in other instances that his services will really be of any significant value; but in keeping with the philosophy prevalent in all aspects of habilitation, whenever there is a reasonable doubt the patient should be given the benefit of this doubt.

Psychological Evaluation

Probably the most frequent questions which represent the clinical psychologist's operational frame of reference are the following: (1) What are the psychological causes for the behavior? That is, here is a child with a problem that the clinician is asked to explain. (2) What is the prognosis? (3) What can the psychologist recommend in order to ameliorate or change the behavior in accordance with a given set of objectives? Theoretically, the problems presented, the prognoses and the recommendations are virtually infinite in regard to the permutations possible. At times the clinician may be unable to answer clearly any of these questions; this in itself, of course, might quite well be significant in a given situation. Patients with sensory and orthopedic defects usually call for extremely careful evaluation and the use of special techniques, depending on the severity of the defect. In addition to the usual problems of establishing rapport, eliciting a representative sample of the subject's behavior and assessing the qualitative aspects of behavior, there are two additional hazards to which the clinician must be alert with the cleft palate child. These are the degree to which the subject is able to express himself and communicate orally

and the ability to receive auditory stimuli adequately. When either of these two modalities is impaired, the major media of expression and/or reception may be rendered ineffective. There is, moreover, a wide variation of impairment in these two areas among cleft palate children.

These children often have recurring and chronic problems of otitis media. Sataloff and Fraser (*28*) found that 27 out of 30 cases with cleft palate had hearing losses of 15 decibels or more for two or more frequencies. At the University of Illinois Cleft Palate Clinic '40 per cent of all children with palatal disturbance had a hearing loss in one or both ears of at least 15 decibels in many speech frequency ranges' (17). Dealing effectively in the clinical setting with subjects having expressive and/or receptive impairments requires careful consideration by the clinician. Doll (7) has called attention to the difficulties of making valid judgments in the clinical evaluation of subjects with expressive or receptive defects, especially the former. He cautions against taking for granted any assumptions basic to clinical diagnosis without verifying the assumptions, if necessary. These points are well taken and relevant to the evaluation of the cleft palate child.

The excellent discussion by Newland (*22*) in regard to the psychological assessment of 'exceptional children and youth' can be read with value by the clinical psychologist who examines children with palatal deformities. It has been the writer's experience that the majority of cleft palate children and adolescents referred for clinical evaluation respond well to the usual procedures with some minor adaptations of techniques. It is imperative that the clinician be more than a psychometrician merely reporting scores, such as IQ. The Intelligence Quotient is a valuable dimension, but without relating it to the complex, underlying functions of personality one can be led far astray. It is something of a paradox that in this age of psychological sophistication so much emphasis is placed on a single quantitative index! As Newland so aptly states: '. . . pinpointing by IQ's is a psychometrist's and statistician's dream rather than a psychological reality' (22). Thus, it is contingent upon the clinician to examine the whole picture in regard to the social, emotional, developmental, educational, physical and intellectual dimensions of the personality relative to the major clinical problem under investigation.

Illustrative Cases

In order to give concrete meaning to the above discussion, two cases are presented which indicate some of the problems encountered in the psychological evaluation of the cleft palate patient.

Case 1 (B.B.). This female, three years, four months of age, was referred for examination in regard to level of mental development and emotional problems relative to delayed speech development. History of the child revealed that she was a full-term normal delivery born with a partial cleft of the posterior portion of the hard palate and complete cleft of the soft palate. Referral to the clinic was made by the family physician because of feeding problems when the patient was two weeks old. The child was seen on nine other occasions during the next 22 months. It was noted by the pediatrician and social worker, as well as others, that the mother was highly anxious and had difficulty in following feeding instructions and in general management of the child. Although general development was not considered re-

tarded, it was observed to be slow. At the age of two years, one month and 12 days, the cleft of the hard and soft palate was closed surgically and a 'push-back' procedure was performed to insure adequate velopharyngeal closure to decrease nasality with the advent of speech. The closure was deemed to be successful. A number of visits were made to the clinic post-operatively for routine examinations; general development continued at a 'slow-normal' rate; the child was observed to be uninterested in her environment and other people. When examined at the age of three years, four months, no speech could be elicited, but the mother reported the child used about seven words at home. Family constellation consisted of four members—mother, father, and an older male child of six years reported to have developed normally in all areas of growth. The father was employed in a semi-skilled trade; both parents were in their late twenties and gave the impression of having average intellectual ability.

Psychological Findings. An attempt was made to administer the Merrill-Palmer Scale of Mental Tests and the Revised Stanford-Binet, 1937, Form L. No adequate rapport could be established; responses on the performance sub-tests were characterized by trial and error behavior; reaction times were slow; no satisfactory responses were given above the two-year level on either of the scales; no speech could be elicited; she was able to respond to simple verbal directions when requested, indicating gross auditory discrimination and the symbolic use of language; she was able to identify some of her major body parts by pointing, but not others. In spite of repeated attempts it was not possible to elicit a smile or a laugh. Behaviorally, the general pattern was one of passivity, withdrawal and 'flat emotionality.' Behavior was not meaningless for the most part but showed a minimal lack of organization and motivation. Physically, the child had no observable defects and was, in fact, a rather pretty child. No visual perception or visual-motor coordination difficulties were apparent. Hand grasp and release were good; prehensile grasp was functionally present. General motor development and coordination were within the expected range for her chronological age. Developmental growth was reviewed with the mother and the areas indicating retardation were indicated to be in speech and the ability to relate to other people. It was reported that the child rarely laughed or smiled before the age of one year and does so now only sporadically. The Vineland Social Maturity showed a social development comparable to the 'average' child of two-and-one-half years of age; there was a decided lack of maturity in 'communication' and 'self-help.' She was reported to relate poorly to the father. Reports of play activities stated that she took no initiative in playing with other children, usually avoided them, but would occasionally engage in parallel play activities in the proximity of two neighbor children. Communication occurs mainly through the process of whining, crying and gesturing. Rate of physical activity was observed and reported to be diminished below the expected level for her age. The mother gave the impression of having a sincere interest and concern about the child's problems but in a rather 'cold and mechanical' fashion; she seemed to lack a genuine spontaneity and warmth in handling the child.

Diagnosis. On the basis of clinical impressions, test responses, emotionality, language development, physical and motor development, social maturity, intellectual functioning, developmental history, ability to relate to people and the environment, and the child-parent relationships, the over-all impression is suggestive of infantile autism. However, the possibility of primary mental retardation with an overlay of emotional disturbance cannot be ruled out. Further longitudinal data are needed to establish the rate and quality of development. It was recommended that the child be re-evaluated at approximately six-month intervals.

Case 2 (G.J.). G. J., a male, 11 years, four months old, was referred for psychological evaluation in regard to his difficulty in school progress and speech therapy for which there were no discernible reasons. Review of the boy's history indicated a full-term normal delivery; he was the second of three children; with the exception of slow speech, developmental history was nor-

mal. Shortly after birth it was observed that he had a partial cleft of the hard palate and a complete cleft of the soft palate. The cleft of hard and soft palate was closed surgically at the age of two years. When the child was first seen at the University of Illinois Cleft Palate Clinic at the age of four years, four months, it was observed that he had a short velum, inadequate for velopharyngeal closure; speech was hypernasal and there were a number of articulatory defects; there was a slight infection in both ears with an apparent mild hearing loss; a number of teeth were in immediate need of dental care. Seen nine months later, when the child was staffed at the Clinic, speech intelligibility had increased noticeably. He was entering school at this time; recommendations included beginning speech therapy and continued otological care for infected ears and a nasal allergy. At the end of the second grade in school, G.J.'s hearing loss became severe enough that he was transferred to a class for the deaf and partially deaf. By the end of fourth grade, hearing was restored to a degree that enabled him to return to a regular classroom. Speech therapy had been continued during this period. During the summers of his seventh and eighth years, he attended Summer Speech Center (see footnote 2) for an intensive six weeks speech therapy. G.J.'s older brother, four years his senior, and his younger sister, three years his junior, were both reported 'normal' in all respects. Both parents were in their late forties. Mr. J. was employed as a laundry truck driver. Mrs. J. had been reported on previous occasions to be an 'overprotective and highly anxious' mother. At the time of the examination by the psychologist, G.J. was in the sixth grade; promotions to this point had been regular. A report from his teacher stated he was doing failing work in reading and arithmetic, often 'day-dreams and wastes time.' Social adjustment with his peers was reported to be good. The child had been examined on five previous occasions on individual intelligence tests; the findings had consistently revealed 'high average' intelligence.

Psychological Findings. Results on the Wechsler Intelligence Scale for Children gave a Verbal Scale IQ of 104, a Performance Scale IQ of 106 and a Full Scale IQ of 105. Analysis of the test responses indicated weakness in vocabulary and in the use of verbal abstractions; performance-wise he was systematic and well organized; fundamentally, the pattern of his behavior and responses indicated a well-integrated personality. The Bender-Gestalt test revealed no visual-motor disturbances. The Goodenough test showed an adequate body-image concept; however, there were omissions in the head area suggesting negative emotional feelings about this area of his body with which had been associated many functional difficulties and unpleasant experiences. Oral reading and reading comprehension were shown to be below the expected level of performance for an individual with his intellectual ability but were not serious enough to cause difficulty at his level of grade placement. G. J. was an alert and pleasant boy, who related well to the psychologist. Speech was quite intelligible with some minor articulatory defects and a moderate degree of nasality which was not particularly unpleasant. Motivation was good, and there were no behavioral manifestations indicating underlying emotional disturbances. Further diagnostic evaluation revealed strong feelings of hostility and resentment toward both the school and the mother because of the pressures they put on him for greater school achievement. The mother admitted later that she spent several hours a day 'helping' the boy with his school work. Failures in classroom tests prompted the teacher to request that the mother help him in these 'deficient' areas. Essentially, this lad was being chronically subjected to a series of unpleasant tasks not of his own choice; the emotional friction engendered was creating effective barriers for an efficient rate of learning of which he was surely capable. He was not given much opportunity for independent functioning and for establishing some of his own goals commensurate with his level of ability and development. This examination took place about one month before the end of G.J.'s school semester. In a report to the school it was suggested that he be promoted, 'on trial' if necessary, since there was nothing to be

gained by having the child repeat his current grade. During a conference with his mother, following the examination, it was suggested that she take some of the pressures off the boy. The social worker, who had had previous conferences with the mother, followed this up later with a series of short interviews. Diagnosis of the boy's difficulties was confirmed six months later when, on a routine visit to the clinic, both mother and child revealed that much better progress was being made in school with a consequent decrease in tension and anxiety between parent, child and teacher.

Summary

In the existing literature there are few systematic studies of the psychological characteristics and problems of persons with the cleft palate syndrome. Many non-psychologists have pointed out the need for understanding the psychological dimensions. The clinical psychologist has only in recent years become an integral member of this habilitative unit. A rationale is presented as a possible criteria for determining whether or not a cleft palate person is handicapped in the socio-psychological sense. Studies dealing with some of the psychological characteristics of cleft palate individuals are briefly reviewed; several are criticized in regard to their lack of adequate controls and the paucity of conclusions that can be drawn. Criteria that are used at the University of Illinois Cleft Palate Clinic indicating a need for psychological services are presented. Several problems involved in the psychological evaluation of the cleft palate child are discussed; emphasis is placed on the need to be cognizant of the expressive and receptive difficulties often found among children with this anomaly and the clinical implications. Also, the clinician should evaluate the 'psychological spectrum' and not be merely a reporter of quantitative scores. Last, two cases that were recently referred for psychological evaluation are presented in some detail.

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An Investigation Into The Ability Of Voice Defectives To Discriminate Among Differences In Pitch And Loudness

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Defective hearing is well known to be causally related to certain types of voice and articulation disorders. Tests of hearing acuity have become standard procedure as part of the speech screening or speech diagnosis program. That aspect of hearing which has to do with discrimination among various types of sounds has been studied with regard to the discovery of methods and norms for measuring such discrimination and its relationship to musical talent. Some investigators have studied the relationship of discrimination abilities to different aspects of speech skill, but the body of evidence in this area remains very limited.

The two variables of pitch and loudness are especially interesting in the consideration of voice disorders. Persons with defective voices make up a large number of those enrolled for therapy in speech clinics and those screened for speech help from the student body of educational institutions on all levels. Among the common types of voice defects are hoarseness, huskiness, stridency, inappropriate pitch placement, hypernasality, denasality and combinations of these problems. Voice therapy for such cases often includes procedures based on learning to place and control pitch and loudness. Therapists using these procedures have noted that many voice defectives apparently have an excessive amount of difficulty learning techniques of controlling these two vocal attributes. Of the two, the voice defectives often appear to have more difficulty with pitch. It has often been found advisable to expose voice patients to a period of ear-training in pitch discrimination as an essential part of therapy.

Another indication of the importance of pitch and loudness to voice defects may be found in an examination of the etiologies of some common kinds of voice disorders. Improper pitch placement (excessively high or excessively low) is recognized as a possible cause of defective voice qual-

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ity; in any case, improper pitch placement is often associated with such deviations in quality. Inadequate loudness may be a voice problem in itself or may be associated with nasality or inappropriate resonance problems. Habitual, excessive loudness has been identified as a possible causal factor in the development of hoarseness, sometimes affecting the vocal organs and causing resulting pathology.

Although the measurement of pitch and loudness discrimination, especially by use of the Seashore tests, has been studied widely, little information is available regarding these abilities as related to voice or speech problems.

In 1926 Travis and Davis (7) used the Seashore measures for pitch, intensity and tonal memory to determine what part these abilities play in certain speech defects. These tests were administered to approximately 600 students, divided into three groups of superior, average and defective speakers. The defective speakers were subdivided into a functional group and an organic group. The researchers found that the superior group differed significantly from the defective speakers in the scores on all three tests. They expected to find that the functional speech defectives would do better on these tests than the organic defectives, but discovered instead that the scores were lower for the functional group. The speech defective group as a whole showed greater variability than the other speakers on all scores. In this study all kinds of speech problems found among these students were grouped together, and no attempt was made to investigate voice defectives separately.

In 1943 Gilkinson (*1*) studied the relationship of speech skill and the scores on the Seashore tests with regard to normal speakers. The scores for each speaker were compared to judges' ratings of variables in the speaker's voice. Gilkinson concluded that there was little relationship between speech skill and Seashore scores when general criteria of speech skill were used.

In an unpublished study completed in 1949, Horowitz (*2*) attempted to correlate ability as shown by the Seashore measures for pitch, intensity (loudness) and rhythm with the effectiveness of speaking as rated by judges. Her subjects were normal speakers. She found a slight relationship between speech skill and the scores for rhythm and pitch discrimination, but no relationship with regard to loudness discrimination.

There seems to be no evidence regarding skill in pitch and/or loudness discrimination of voice defectives, considered apart from normal speakers or other speech defectives. This study was designed to investigate the ability of persons diagnosed as having defective voices to discriminate among differences in pitch and loudness of musical tones.

This investigation sought answers to the following questions:

1. How does the ability of voice defectives for loudness discrimination compare with that of an unselected population?

2. How does the ability of voice defectives for pitch discrimination compare with that of an unselected population?

3. Is the diagnosis of the voice disorder (functional or organic) related to the ability of the subject to discriminate among differences in pitch and loudness?

4. What changes can be found in these discrimination abilities of voice defectives after a period of voice ther-

apy including ear-training for these variables of pitch and loudness?

Procedure

The test materials were two sections of the Measures of Musical Talent developed by Carl E. Seashore, the subtests on pitch and loudness. Each of these tests consists of 50 pairs of musical tones on a 12-inch 78-rpm phonograph record. In the test for pitch, the 50 pairs are identical in loudness but vary in pitch. The subjects are directed to listen to each pair of tones and to judge whether the second tone of each pair is higher or lower than the first, marking this response on a form provided for the purpose. In the loudness test, the tones are the same in pitch but vary in loudness. Here the subjects must judge whether the second tone in each pair is stronger or weaker than the first. The score for each subject is the number of correct responses for each test. The scores can be converted to decile ranks according to the table provided in the manual of directions (*6*) for administering the tests. Norms for the unselected population are provided, in terms of per cent of correct responses.

The subjects consisted of 90 persons ranging in age from 14 years up, the range defined as adult by Seashore in his standardization of the measures. The subjects were patients at the speech and hearing clinic at Columbia Presbyterian Medical Center and the Queens College Speech and Hearing Center and students at Queens College who were recommended or required to take remedial voice work at the college. All had been diagnosed as having defective voices by persons trained in speech and voice therapy; the patients at Columbia Presbyterian Medical Center had been referred for voice training by a medical specialist. Both organic and functional voice problems were found among the subjects. However, persons whose voice defects were associated with other pathological conditions, *e.g.*, cleft palate or cerebral palsy, were excluded from the sample to be studied. All persons known to have significant hearing loss were also excluded. These 90 subjects made up the experimental group. A control group of 87 persons was made up of students enrolled in fundamentals of speech courses in Queens College day and evening sessions.

The procedures followed in analyzing the test scores were:

1. Experimental group scores on the subtests for pitch and loudness were compared to those of the control group and again to those of the original standardization group by means of the *t*-test.

2. Two groups were selected from the total experimental number, according to the diagnosis of the voice disorder: one group with organic voice problems and the other with functional voice problems. Those with mixed diagnosis were not considered for this part of the study. There were 54 members in the functional group and 23 members in the organic group. The scores of the organic and functional groups were compared by means of the *t*-test.

3. Fifteen of the subjects who had formed the experimental group were retested at the end of a 15-week course in voice improvement which emphasized procedures in training for discrimination for differences in pitch. The two sets of scores were compared by means of the *t*-test appropriate for the purpose of comparing test and retest scores.

TABLE 1. Mean scores for pitch and loudness discrimination tests (Seashore Measures of Musical Talent) of experimental, standardization (*6*) and control groups.

Test	*Standardization Group N=1071 for Pitch N=1087 for Loudness*	*Control Group N=87*	*Total Experimental Group N=90*	*Experimental Functional Group N=54*	*Experimental Organic Group N=23*	*Test-Retest Group N=15*	
						Original	*Retest*
Pitch	75.90	74.74	66.98*	66.09	64.95	68.94	75.60†
Loudness	81.40	83.35	80.82	81.62	78.60	83.74	84.94

*Compared with standardization and control groups, significant at the one per cent level.
†Compared with original test score, significant at the two per cent level.

Results in Table 1

Experimental Group Compared with Standardization Group. On the test for pitch discrimination, the standardization group had a mean percentage score of 75.90; the experimental group was found to have a mean score of 66.98. This difference is statistically significant at the one per cent level (*4*). On the test for loudness discrimination, the mean score for the standardization group was 81.40 and the mean score for the experimental group was 80.82. This difference is not statistically significant.

Experimental Group Compared with Control Group. On the test for pitch discrimination, the control group had a mean percentage score of 74.74 and the experimental group mean score was 66.98. This difference is statistically significant at the one per cent level. On the test for loudness discrimination, the control group mean score was 83.35 and the experimental group mean score was 80.82. This difference is not statistically significant.

Subjects Divided into Two Groups on the Basis of Diagnosis. On the test for pitch discrimination, the functional group had a mean score of 66.09 compared with 64.95 for the organic group. This difference is not statistically significant. On the test for loudness discrimination, the mean score of the functional group was 81.62 and the mean score of the organic group was 78.60. This difference is not statistically significant.

Comparison of Test-retest Scores. On the first test for pitch discrimination, the mean score of the group tested before and after voice therapy and ear-training was 68.94; on the retest, the mean score for this group was 75.60. This difference is statistically significant at the two per cent level. In loudness discrimination, the mean score of this group on the first test was 83.75; the mean retest score was 84.94. This difference is not statistically significant.

Conclusions

1. The voice defectives in this study were found to be significantly poorer than either the control group or the Seashore standardization group in pitch discrimination. The voice defectives were not significantly poorer than the other groups in loudness discrimination.

2. The results showed that there

were no significant differences for either pitch or loudness discrimination between the functional and organic voice defective sub-groups.

3. The group tested before and after completing a program of voice training emphasizing ear-training in pitch discrimination showed a significant gain in pitch discrimination. There was no significant gain in loudness discrimination.

Discussion

According to the results of this study, voice defectives appear to be inferior in pitch discrimination as compared to the normal population. It may be theorized that poor pitch discrimination can be a causal factor in the development of voice disorders associated with poor pitch placement or in the difficulty the voice defective may have in modifying the poor pitch placement even when this is not the original basis for the voice disorder, as in organic voice problems. Although problems of inadequate or excessive loudness may be found associated with vocal disorders, the ability of the voice defectives to discriminate among differences in loudness does not appear related to the voice problem as determined by this study. Loudness discrimination as tested here seems to be similar in both voice defectives and the normal population, and this level of ability did not change appreciably in any of the analyses.

Although pitch discrimination ability may be considered to be an associated factor in voice disorder, the diagnosis of the voice disorder, roughly divided into functional or organic categories, seems to be unrelated to discrimination ability. This result is not surprising when the difficulty of making a clear-cut diagnosis is considered. Although for this part of the study those subjects with clearly mixed organic and functional etiologies were not considered, it is still possible that some members of the organic group, for example, had functional etiological factors which were not noted because of the predominance of the organic factors or that initially the disorder was a functional one which later assumed organic symptoms.

Further investigation in these areas is indicated:

1. Can the same results be said to apply for voice defective children?
2. Are gains in pitch discrimination ability related to degree of improvement in voice quality?
3. Do the voice defectives who show gains in pitch discrimination ability after a period of ear-training and voice therapy maintain this improvement?

Summary

An experimental group of 90 subjects with voice problems and a control group of 87 unselected subjects were tested for ability in pitch and loudness discrimination as measured by subtests of the Seashore Measures of Musical Talent. The voice defectives' scores for pitch discrimination were found to be significantly poorer than those of either the control group or the Seashore standardization group; the scores for loudness discrimination were not significantly different. Two groups of 54 functional cases and 23 organic cases were selected from the original 90 experimental subjects. Thirteen subjects with mixed etiology were not included in this part of the study. The scores of the functional and organic subgroups were compared and no significant differences were found. Fifteen of the experimental subjects were tested twice with both

measures, once before receiving therapy and again after a program of voice training including ear-training. When the test-retest scores were compared, a significant gain was shown in pitch discrimination, but no significant change occurred in loudness discrimination.

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Effect Of Delayed Auditory Feedback On The Repetition Of Speech Sounds

Richard Allen Chase

Delayed auditory feedback refers to an experimentally induced delay in the air conducted return of a speaker's vocal output to his ears. Such a delay can be achieved by permitting the record and playback heads of a magnetic tape recorder to operate simultaneously. This technique will be elucidated below.

When air-conducted auditory feedback is delayed, striking changes occur in speech. One of the most characteristic of these changes is an increase in phonation time for words and phrases. It is the purpose of this study to define a possible mechanism to account for this increase in phonation time.

Background

In the earliest reports of the phenomenon of speech changes under delayed auditory feedback, Lee (*10, 11, 12*) notes the general tendency of speech to slow down, and Black (*3*) observes progressive retardation in oral reading rate under increasing increments of feedback delay within the range .03 to .18 seconds.

Reviewing the selective vocal effects of delayed auditory feedback, Fairbanks (*8*) notes a maximal increase in the time required to read a sentence at a feedback delay of 0.2 seconds. Rawnsley and Harris (*14*), using sound spectrograms, observe that phrases spoken in the presence of delayed feedback are longer in almost every case.

Atkinson (*1, 2*) observes no adaptation regarding decreased speaking rate during a five-minute reading period, and Black (*4*) finds that the decreased reading rate caused by delayed feedback persists in a measurable degree at least through 150 seconds after the delay has ceased to be present in the feedback.

The subject's inability to control the increase in phonation time that accompanies delayed feedback is one of the observations that lead Hanley and Tiffany (*9*) to suggest the condition of delayed auditory feedback as a test for auditory malingering and psychogenic deafness.

Peters (*13*) notes that speakers, instructed to read naturally, read at faster rates under conditions of accelerated feedback than under the condition of feedback delay which approximates the transmission time of normal air-conducted feedback (0.001 sec.).

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Theoretical Postulate

Experimenting with his own vocal responses under delay, the writer has observed that although he does not usually repeat words or speech sounds under delay, once he *voluntarily* repeats various speech elements, it is difficult to stop. Other observers have reported the same experience.

The observation suggests that the condition of delayed feedback facilitates the circulation and recirculation of speech units in the speech–auditory feedback loop. At this point no assumption is made concerning the identity of these speech units. This is an idea with which one can explain why it takes longer to say a word under delay than under control conditions. Figure 1 represents a spoken word made up of three hypothetical speech units (*a*, *b*, *c*). Under normal conditions [Figure 1(a)], unit *a* is produced as vocal output; this vocalized signal feeds back to the speaker, is received, releases unit *b*, and so on, until the word is completed. Under the conditions of delayed feedback [Figure 2(a)], the circulation and recirculation of the speech units is facilitated. In this case unit *a* is produced as vocal output; this vocalized signal feeds back to the speaker, is received, but in-

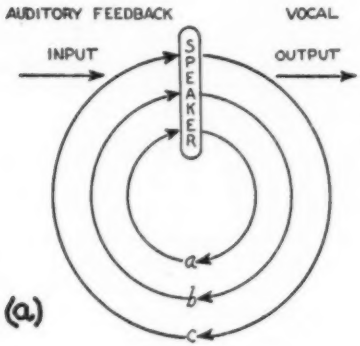

FIGURE 1 (a, b). Schematic representation of a model for normal vocalization. Each hypothetical unit of a word is produced as vocal output, feeds back to the speaker and contributes to the release of the next speech unit (a). This process results in vocalization of the complete word (b), in which each of the three speech units comprising the word appears once.

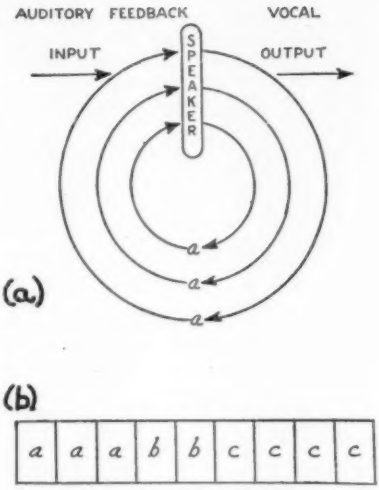

FIGURE 2 (a, b). Schematic representation of a model for vocalization under delayed auditory feedback. The hypothetical unit of a word is produced as vocal output and feeds back to the speaker; but instead of contributing to the release of the next speech unit, it tends to recirculate one or more times in the speech-auditory feedback loop before the next speech unit is released (a). In this case the completed word (b) contains several repeated speech units.

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stead of releasing *b*, recirculates in the speech-auditory feedback loop one or two more times before *b* is released. Figure 2(b) represents the case in which each of the speech units of the word in Figure 1 is repeated several times. In this case the vocalization time for the word in question would be considerably longer under delay than under control conditions.

If the condition of delayed auditory feedback facilitates the circulation and recirculation of speech units in the speech-auditory feedback loop, then it should be possible to repeat a single speech sound more often in unit time under delay than under control conditions.

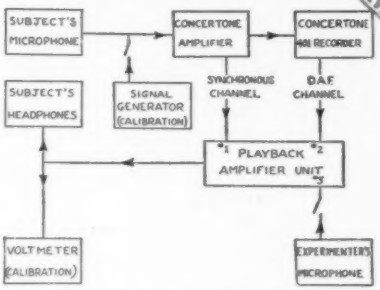

FIGURE 3. Schematic representation of 'synchronous' and delayed auditory feedback circuits.

Hypothesis and Method

The following hypothesis defines the problem of the present study: it is possible to repeat a sound more times in a five-second period under the condition of delayed auditory feedback than under control conditions.

Subjects. The subjects for the following experiments were young male and female adult students and personnel at the Columbia-Presbyterian Medical Center in New York. All subjects had normal speech and hearing.

Procedure. The subject was seated at a desk in a sound treated room. He was fitted with PDR-8 earphones supplied with tight-fitting rubber cushions. An Electro-voice model 646 dynamic microphone was fixed on a bridge attached to the headset at a standard two-inch distance from the subject's lips. The subject was instructed to repeat the speech sound [b] as quickly as possible, starting at a signal from the experimenter, and to stop after five seconds, as indicated on a stop watch held by the subject. In this first condition of the experiment, the output from the microphone fed into an amplification system which added 20 db to the subject's speech signal before it was passed to the subject's earphones (Figure 3). The feedback delay time in this 'synchronous' feedback condition is faster than that occurring in normal speech. In the second condition of the experiment, the same instructions and procedure used in part one were employed, but this time, the output from the microphone passed from the amplifier of a Concertone 401 magnetic tape recorder into the recording head of the Concertone unit. The speech signal was recorded on the tape, and passed at a speed of 7½ ips to the playback head from which it passed to the playback amplifier unit and into the subject's headset (Figure 3). The distance between the record and playback heads gave a feedback delay time of .216 seconds at the tape speed used. In this second condition the same net amplification of the subject's speech signals used in the first condition was provided. Twenty subjects were tested under these two conditions. For control, 10 new subjects were tested using the control condition of 'synchronous' feedback as both the first

TABLE 1. Differences between the number of times the speech sound [b] could be uttered in a five-second period under delayed auditory feedback (II) and a preceding five-second control period (I). 'Impression' indicates the condition under which the subject felt he could repeat the sounds faster. An *O* in this column indicates that the subject felt there was no difference in this regard between the conditions.

Subject	*Number of Units*		*Difference in No. of Units from I to II*	*Impression*
	I Control	*II Delay*		
1	35	42	7	II
2	33	40	7	II
3	32	38	6	II
4	33	39	6	II
5	14	20	6	II
6	35	40	5	0
7	26	30	4	0
8	30	34	4	0
9	35	39	4	II
10	38	42	4	II
11	28	31	3	II
12	32	35	3	II
13	37	40	3	0
14	35	37	2	II
15	29	31	2	I
16	33	34	1	II
17	33	34	1	0
18	34	34	0	II
19	28	28	0	I
20	34	32	-2	I

and second conditions of the experiment.

After the second condition of the experiment, the subjects were asked whether they thought they could repeat sounds faster under either of the conditions of the experiment.

Calibration. The amplification under the delayed and 'synchronous' conditions was matched and adjusted

TABLE 2. Differences between the number of times the speech sound [b] could be uttered in a five-second control period (II) and a preceding five-second control period (I). 'Impression' indicates the condition under which the subject felt he could repeat the sounds faster. An *O* in this column indicates that the subject felt there was no difference in this regard between the two conditions.

Subject	*Number of Units*		*Difference in No. of Units from I to II*	*Impression*
	I Control	*II Control*		
1	19	23	4	II
2	29	30	1	0
3	31	32	1	0
4	32	33	1	0
5	34	34	0	0
6	42	42	0	II
7	36	33	-3	I
8	38	37	-1	I
9	17	16	-1	0
10	37	36	-1	0

by using a .01 volt 400 cps signal from a General Radio Co. Unit Oscillator type 1214-A as the input to the system (Figure 3) and by adjusting the amplification so that the output voltage from the system would reach the desired control value.

Analysis. The sounds uttered during the different conditions were counted by playing the tapes at a speed of 3¾ ips. The counts were checked and corrected for any errors by the subjects in determining the five-second time unit.

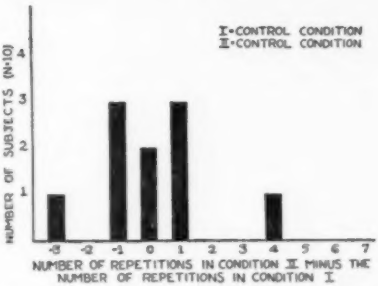
I=CONTROL CONDITION
II=CONTROL CONDITION
NUMBER OF SUBJECTS (N=10)
1
2
3
4
-3 -2 -1 0 1 2 3 4 5 6 7
NUMBER OF REPETITIONS IN CONDITION II MINUS THE NUMBER OF REPETITIONS IN CONDITION I

FIGURE 5. Differences between the number of times the speech sound [b] could be uttered in a five-second control period (II) and a preceding five-second control period (I).

Results

The number of times the speech sound could be repeated under the control and delay conditions for the 20 subjects so tested is given in Table 1. The subject's impression as to which condition facilitated repeating the speech sound is also given in this table. The number of times the sound could be repeated under the two consecutive control conditions for the 10 subjects so tested is given in Table 2. The subject's impression as to which condition facilitated repeating the sound is also given in this table. Seventy-five per cent of the subjects tested under the condition of delayed auditory feedback increased from two to seven units (one unit equals one utterance of the speech sound [b]) in the number of sounds repeated under the delay condition as compared with the control (Figure 4). Changes of one unit are within the margin of error for counting.

That this increase under delay is not due to the order of presentation of conditions is clear from examination of Figure 5, in which it is seen that only one out of 10 subjects increased two or more units in the sec-

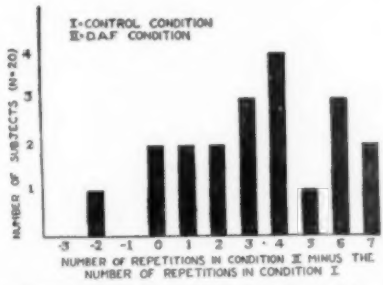
I=CONTROL CONDITION
II=D.A.F. CONDITION
NUMBER OF SUBJECTS (N=20)
1
2
3
4
-3 -2 -1 0 1 2 3 4 5 6 7
NUMBER OF REPETITIONS IN CONDITION II MINUS THE NUMBER OF REPETITIONS IN CONDITION I

FIGURE 4. Differences between the number of times the speech sound [b] could be uttered in a five-second period under delayed auditory feedback (II) and a preceding five-second control period (I).

TABLE 3. Answers to the question: Did you feel that you could repeat sounds faster undre either of the conditions of the experiment?

	I	*II*	*Couldn't Tell*	*Total*
No. of Subjects (I Control Condition) (II Delay Condition)	3	12	5	20
No. of Subjects (I Control Condition) (II Control Condition)	2	2	6	10

ond trial when the control condition was used twice.

The great majority of subjects tested under the delay condition who felt that one of the two conditions of the experiment permitted them to repeat the sound more times decided in favor of the delay condition (Table 3). When the control condition was used twice, the number of subjects who felt that the first condition facilitated repetitions was equal to the number who felt that the second condition facilitated the repetitions. The majority of subjects in this series could distinguish no difference between the two conditions in this regard.

Discussion

Facilitation of Repetitions in Speech. The results of this experiment give positive support to the hypothesis that it is possible to repeat a speech sound more times in a five-second period under the condition of delay than under control conditions. The condition of delay appears to have facilitated the circulation and recirculation of the speech sound unit in the speech-auditory feedback loop. One can now ask the question: what aspect of the condition of delayed feedback causes this facilitating effect?

The condition of delayed auditory feedback causes progressive changes in the vocalization time pattern and changes in the physical characteristics of the speech signals vocalized.

In considering what factors are causing the facilitation in the circulation and recirculation of the speech sounds under delay, we must consider not only the initial delay in auditory feedback, but also the secondary changes in speech which result from the delay (*8*).

It is suggested that the facilitating effect on the circulation and recirculation of speech sounds under delayed auditory feedback is a function of: (1) changes in the temporal relations between speech signals, involving both the production and feedback reception of vocalization, (2) changes in the physical aspects of the speech signals themselves or (3) complex changes in the acoustic environment around the speaker's ear, referring to combinations of factors included under (1) and (2), such as the possibility that signal reception under delay might be functioning as noise.

Applications to Stuttering. There is a possible analog between the situation pictured in Figure 2 and some types of stuttering (*11*). The factors which account for the facilitating effect of delayed feedback on circulation of speech sounds might also be operative in some types of stuttering.

The idea that physical aspects of the speech signal, and time relations between speech signals, might be implicated in stuttering is supported by observations of conditions under which stuttering is greatly improved. Speaking in a monotone, in a sing-song manner, through closed teeth, whispering, singing, and reading aloud with others result in marked improvement of speech for many stutterers (*5, 6*).

Cherry and Sayers (7) have recently reported striking decreases in errors of articulation in the speech of stutterers when a 140 cps masking tone is supplied through headphones while the stutterer is speaking. The same effect was produced when a masking white noise with high frequency cutoff at 500 cps was used instead of the 140 cps pure tone. These observations indicate that auditory input simultaneous with speech may be a vital area of investigation in understanding the mechanism of stuttering.

The hypothesis that physical aspects of speech signals, and time relations between speech signals, are implicated in the dynamics of stuttering can be tested as follows: The factors which prove to be most strongly implicated in the facilitating effect of delay upon the recirculation of speech sounds can be systematically altered in the stutterer's speech before it is returned to his ears, in the hope of reducing the recirculation of speech elements characteristic of some types of stuttering.

The three classes of factors noted above which may be causing the facilitating effect of delay on the repetition of speech sounds can be examined by systematically varying the delay times of auditory feedback and by altering different aspects of the speech sounds (*e.g.*, spectral characteristics, intensity) uttered by the subject before feeding back the signal, observing in both techniques the number of sounds which can be repeated in unit time. The same observations can be made when noise is presented to the subject, or when combinations of factors considered in (1) and (2) are experimentally varied, in order to test (3).

Speech Units Which the Delayed Auditory Feedback Causes to Recirculate. The present experiment does not help very much in deciding the nature of the speech unit or units which tend to recirculate in speech under delayed auditory feedback. All that can be said from these data is that recirculation of the speech sound [b] can be facilitated under delay. It should be noted that facilitation of recirculation for speech units may result in obvious repetitions in speech for some cases, and prolongations of speech in other cases. For example, if facilitation of recirculation functioned at the level of word units, repetition of words so affected would be readily noted by a listener. However, if facilitation of recirculation functioned at the level of a unit of speech smaller than a syllable, it might be heard solely as a prolongation of the syllable. In this case, a visible speech recording might be necessary to reveal the actual repetition of the small speech unit.

In work with children in the four-to-nine-year age group speaking under delayed feedback, we have observed speech units smaller than the syllable to be repeated three times as frequently as syllables. We also noted that children who tended to repeat words and word groups in their normal speech ceased to do so under delay, but rather showed the same increase in time taken to speak a word as other children. These observations indicate that, for this population, the condition of delayed auditory feedback facilitated the recirculation of speech elements smaller than either words or syllables. In the case of the few children tested who normally repeated words, the delayed feedback apparently shifted the tendency toward repetition to smaller speech units.

Summary

The idea that the condition of delayed auditory feedback facilitates the circulation and recirculation of speech units in the speech-auditory feedback loop suggested that it is possible to repeat the speech sound [b] more times in a five-second period under delayed feedback than in a five-second period under control conditions. Twenty subjects, with normal speech and hearing, repeated the sound as many times as possible in a five-second period under control conditions and

then under delay conditions. Fifteen of the 20 subjects repeated the sound from two to seven more times under delay than under control conditions. Ten new subjects were given the same task, but this time the control condition served as both of the experimental conditions. In this group, there were just as many *decreases* in the number of speech sound units repeated under the second condition as *increases*, indicating that the effect stated above is not due to the order of presentation of conditions.

Three hypotheses were discussed concerning the dynamics of the facilitating effect of delayed auditory feedback upon the circulation and recirculation of speech units. Applications of this research to the study of stuttering were indicated.

Acknowledgments

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The Variability Of Oral Reading Rate

Edward W. Gibbons

Richard A. Winchester

Donald F. Krebs

Since the end of World War II the audiologist has assumed an increasing share of the responsibility for validating organic thresholds presented by persons seeking compensation for auditory disorders. As a result, audiometric methods have been sought which can bring about an improvement in the ability to measure the organic component in these cases. Delayed sidetone audiometric procedures are among those techniques which have become useful whenever subject cooperation is deemed inadequate.

Clinical utilization of delayed sidetone testing has high-lighted several problems which limit its use with respect to organic threshold estimation (*10*). Much of the earlier work involving delayed sidetone has used short phrases and passages as a means of eliciting oral reading responses (*1, 2, 3,* 7, *8, 9*). Clinical experience, however, has shown that delayed sidetone testing techniques designed to quantify the extent of the organic threshold shift must involve sustained periods of oral reading.

Previous research has indicated that small changes in the time required to read equated prose passages may be used to detect delayed sidetone interference with the speaking process (*5*). In order to predict organic thresholds from these time changes, more information is needed regarding the normal variability in rate of sustained oral reading without the application of delayed sidetone. A review of pertinent literature failed to reveal any previous investigation of this problem.

It was therefore proposed to study the variability of unimpeded reading rate under conditions duplicating those involved in auditory threshold estimation. The present report concerns the investigation of the hypothesis that sustained reading, in and of itself, may have an influence upon oral reading rate.

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Subjects

The subject population consisted of a single group of normally hearing veterans which was randomly selected from the caseload seen in the Audiology and Speech Correction Clinic of the Medical Division, Veterans Ad-

TABLE 1. Mean and population variance of reading time in seconds for 60 subjects reading ten 200-syllable sections of prose.

	Section									
	1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*
Mean	52.7	51.7	51.7	54.5	52.2	51.0	51.4	53.4	50.8	50.1
Population Variance σ^2	33.6	38.4	34.8	50.4	42.3	42.3	36.0	54.8	32.5	38.4

ministration Regional Office at Los Angeles, California. Each veteran selected for study had been shown to have speech reception thresholds for both ears of five db or better. No subject studied had a pure-tone threshold worse than 15 db for more than one frequency from 125-8000 cps. In addition, all subjects were screened for reading and neuropsychiatric disorders. The mean age of all subjects was 29.1 years, and there were 58 males and two females in the group.

Procedures

A treatment by subjects experimental design was employed, and a reading passage composed of neutral, expository prose taken from a fifth-grade reader was used to elicit the oral reading responses (*4*). This passage, after having been edited to eliminate breaks in continuity and lapses in textual homogeneity, contained 2000 syllables of running discourse. Average word length throughout the passage was 1.23 syllables, and average sentence length was eight words. The reading passage was divided into ten 200-syllable sections.

Each subject read the 2000 syllables without interruption while wearing headphones in an acoustically isolated room. In order to ascertain the variability of oral reading rate, the reading time for each of the ten 200-syllable sections was measured by means of stop-watches. Thus, it was possible to obtain an index of oral reading rate at specified points throughout the test passage. Standardized instructions were given to each subject to read normally without stopping or hesitating, and all tests were conducted in the same room in order to insure constant experimental conditions.

TABLE 2. Summary of analysis of variance testing reading rate differences for 60 subjects reading ten 200-syllable sections of prose.

Source of Variation	*d.f.*	*Sum of Squares*	*Mean Squares*	*F*
Total	599	361,403	...	
Reading	9	921	102	0.1734
Subjects	59	48,367	820	
Subjects X Reading	531	312,115	588	

Results

Table 1 presents a tabulation of the data obtained for each of the 10 test sections. Reference to this table will reveal that there were small numerical differences in the mean reading times. In order to estimate the significance of the differences among these mean reading times, a conventional analysis of variance technique was employed (*6*). Table 2 presents

a summary of the computations resulting in an *F* score which provided a test of the significance of the influence of sustained reading. This critical ratio, which failed to be significant at the five per cent level of confidence, indicated that prolongation of the oral reading task was not a source of variation in oral reading rate.

Summary and Conclusions

This investigation was undertaken in order to determine whether or not the oral reading task itself produces variations in oral reading rate. Results indicate, in the case of normally hearing subjects, that sustained oral reading under headphones does not result in statistically significant temporal variation and that within these conditions a uniform rate of speaking occurs.

It was therefore concluded that time changes occurring during the reading of equated, neutral prose passages are not the result of the reading task itself and that the estimation of organic threshold values established by means of delayed sidetone tests can be based upon the timing of sustained oral reading performances under delayed sidetone.

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Effects Of Intermediate Midbrain Crusotomy On The Speech Of Athetoid Cerebral Palsied Patients

Jeanne K. Smith

Russell Meyers

The purpose of this paper is twofold: (1) to report an analysis of the pre- and post-operative speech aberrations encountered among 15 patients suffering from the bilateral tension-athetotic type of quadriparetic cerebral palsy and (2) to record the early effects of the operative procedure employed, namely, intermediate midbrain crusotomy (pedunculotomy), upon the speech of these patients.

Bilateral interruption of the intermediate three-fifths of the crus cerebri for the alleviation of severe abnormal involuntary movements was instituted by Meyers in 1953. This portion of the midbrain is presumed to give transit to the pyramidal (corticospinal) tract. The details of the surgical technique have been described elsewhere (*4*). In most patients, one side of the body appeared to be more severely afflicted than the other and, for the earliest possible relief, operation was always performed first on the side of the brain opposite that of the more severely afflicted limbs. Post-operatively, the contralateral abnormal movements were usually markedly reduced and, in some instances, completely abolished under conditions of repose. Some crudely purposive movements, possessing greater or lesser degrees of adaptivity (voluntary movements), were achieved in the contralateral limbs, head, face, neck and trunk following operation in all cases. Of considerable interest was the fact that in a number of instances appreciable improvement in respect to athetosis and tension also appeared in the ipsilateral limbs, though never of the degree exhibited in their contralateral fellows.

The neurologic status of each patient was repeatedly evaluated during a post-operative period of from three to six months. Patients who continued to exhibit marked athetotic and hypertonic activity of the limbs ipsilateral to the first crusotomy were then subjected to a second operation on the side opposite that of the first procedure. The details of the neuro-

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logic and general socio-psychologic findings encountered post-operatively in a series of 17 cases subject to bilateral intermediate crusotomy have been recorded elsewhere (*3*).

These patients were studied in various spheres of their pre- and post-operative activity to determine as closely as possible the effects of the operative procedure(s). Pre-operatively, after the usual medical and psychologic histories had been obtained and the general physical, neurologic, ophthalmologic, otolaryngologic, orthopedic, radiologic, urinary, blood and serologic examinations had been made, psychometric tests were administered and motor behavior and coordination were evaluated and documented in the form of motion pictures. Speech performances were likewise recorded during three different periods, *viz.*, pre-operatively, post-operatively following the first crusotomy and, in those patients subjected to bilateral operation, post-operatively following the second crusotomy.

Criteria of Selection for Operation

Among the half million patients in the United States said to be suffering from cerebral palsy, a considerable portion, estimated at nearly 50 per cent (*1*), exhibit some degree of hyperkinesia—usually in the form of choreoid and/or athetoid movements. Hypertonus, a frequent finding in cerebral palsy, commonly takes the form of spasticity and/or rigidity. The irregular ebb and flow of postural hypertonus (dystonia) is clinically manifest as muscular 'tension.' This may take the form of torsion spasms of the truncal, scapulo-humeral and/or pelvico-femoral segments and, in the most severely afflicted patients, of relatively sustained malpostures and contractures of axial and appendicular structures (*2*).

All patients in the present series of 15 exhibited athetotic and tension-dystonic phenomena to a marked degree. They ranged in age from eight to 26 years and were accepted for operation on the basis of an urgent need for relief of hyperkinesia and the possibility of thereby gaining some socio-psychologic improvement. Operation was not undertaken for the purpose of improving the patients' capacities for communication by verbal speech. Seven patients underwent bilateral intermediate crusotomy and eight, unilateral crusotomy.[1] Samples of speech were recorded at least three times in the bilateral group (pre-operatively and once after each operation) and twice in the unilateral group (pre-operatively and post-operatively). The present report bears reference to follow-up studies made within 12-14 months of operation. Additional and subsequent observations will be made the basis of a later report.

Each recording was considered individually and comparisons were made between the patient's performances at progressive stages. The following dimensions were employed: (1) breath control, (2) control of speech musculature, (3) tension, (4) pitch control, (5) voice quality, (6) inflection, (7) volume, (8) vocalized inhalation, (9) effort required to produce sound, (10) sustained vocalization, (11) oral pressure, (12) involuntary vocalization, (13) length of verbal responses, (14) quantity of

[1]Four of the 'unilateral' cases reported here subsequently underwent a second stage operation and thus became 'bilateral.' However, speech studies in these cases were completed only into the first post-operative period and have therefore been reported with the 'unilateral' cases.

verbalization, (15) intelligibility, (16) assurance, (17) fluency and (18) articulation.

These dimensions were selected arbitrarily after a perusal of available literature failed to provide a precedent for detailed analysis of cerebral palsied speech (*6*). *Breath control* was evaluated in terms of the patient's ability to vocalize without over-extending sounds and/or to exhale and yet retain sufficient breath to produce desired phonation. *Control of speech musculature* was evaluated in terms of the severity of athetoid movements superimposed upon the speech articulators (jaw, tongue and throat). *Tension* was estimated in terms of the patient's ability to initiate sound or continue a word once initiated. *Pitch* was judged in terms of (a) sudden increases or decreases of frequency apparently not desired by the patient and/or (b) the utilization of a pitch level unpleasant to the listener. *Voice quality* was evaluated in terms of stridency, harshness, huskiness and similar 'qualitative' deviations. *Inflection* was estimated in terms of the ease with which a patient controlled his voice pattern, *e.g.*, as when the desired inflection was missing or distorted sufficiently to compromise the listener's perception of the intended meaning of an utterance. *Volume* was judged, as usual, in terms of loudness. *Vocalized inhalations* were readily recognized as such.

The *effort required to produce sound* was estimated visually as well as audibly. The audible estimate was made, *e.g.*, in terms of (a) the sudden production of non-essential utterance preceding desired vocalization and (b) the sudden undesired expiration of breath. *Oral pressure* was rated in terms of the patient's ability to sustain sounds. *Involuntary vocalizations* other than those occurring with indrawn breath were readily recognizable as such. *Length of verbal responses* was evaluated in terms of the number of separate phonetic units meaningfully produced. This dimension, in contradistinction to the next following, was eminently concerned with sentence structure. *Quantity of verbalization* was rated in terms of the number of phonetic units produced, without reference to meaning and/or language structure. *Intelligibility* was judged on the basis of the examiner's ability to interpret sounds reproduced on the tapes without knowledge of the subject matter intended for communication by the speaker. *Assurance* on the part of the patient was estimated at the time of production of speech and again during the later interpretations of the tape recordings. *Fluency* was rated in terms of the patient's ability to articulate without muscular or psychological inhibitions. *Articulation* was judged in terms of the phonetic productions. It is apparent, of course, that some degree of overlapping of dimensions prevails (*5*).

Procedure

In order to facilitate comparison of successive performances, recordings were made on permanent tapes for each patient. The pre-operative recording was dated and suitably identified with the patient's name, physical diagnosis and referring doctor. All post-operative recordings of the same individual were similarly identified on the same tape. Following each performance, the examiner made such comments as seemed pertinent. In this way, unrecorded events (*e.g.*, distractions accounting for inordinate pauses, extreme activity of extremities

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interfering with speech performance, *etc.*) were permanently incorporated with the patient's data.

The taped samples represented the optimal performances obtainable within the time available. Patients so capable were asked to read from a typewritten paragraph, first silently and then orally. Words offering difficulty because of unfamiliarity were explicated and when assistance seemed called for during the patient's oral production it was provided by the examiner and automatically incorporated with the record. The paragraph routinely employed in this portion of the test was as follows:

> Our teacher asked me never to jump in front of cars again when I race Tommy to school in the morning. Every day I see a policeman on the way. He says in a very kind way, 'Wait until the light has turned green and look both ways before you go across the street. You need not be afraid when you know that you are doing the right thing.'

Patients incapable of oral reading were asked the following questions:

> 1. What is your name? 2. Where do you live? 3. Have you ever gone to school? 4. What do you do for entertainment? 5. What do you like to eat? 6. Do you have any brothers or sisters? 7. What are their names? 8. Where do they live? 9. Do you have any pets? 10. What are they? 11. Breed and name? 12. Please count to 15.

Conversation concerning one or more of these items was developed whenever possible. Full advantage was taken of those patients able to describe television programs, occupational interests, spectator activities and similar items pertaining to their families and everyday living.

For patients with severely limited abilities to communicate verbally, familiar objects and/or pictures were employed to evoke some recordable sounds. Most such patients were accompanied by parents who suggested to the examiner appropriate objects and pictures that carried some potential for eliciting verbal responses.

The tape recordings were subsequently played back, analyzed, evaluated in respect of the 18 dimensions cited above and annotated. Post-operative departures from the pre-operative performances were classified as 'regressed,' 'same' or 'improved.' Owing to the wide variation of performance from patient to patient and the relatively small series studied, it did not appear fruitful to devise a numerical rating scale for more refined quantification.

The patients were assigned numbers for tabulation purposes. Their performances were rated in respect of the various dimensions as indicated in the accompanying figures. Figure 1 refers to the seven patients who underwent bilateral crusotomy and Figure 2 to the eight who underwent unilateral crusotomy. After an interval of several months the procedure was repeated. All post-operative recordings were evaluated without reference to the original analysis in order to ascertain the consistency of evaluative judgments made by the examiner from examination to examination. The variability of such judgments proved to be negligible, there being no more than three variations referable to any one tape and all these of small degree. In no instance was the difference between formulated judgments such as to change the over-all rating of the patient's performance in respect to a given dimension. However, when any difference of judgment did occur, the examiner re-evaluated the recordings referable to the particular dimension. Two opinions in agreement were allowed to stand.

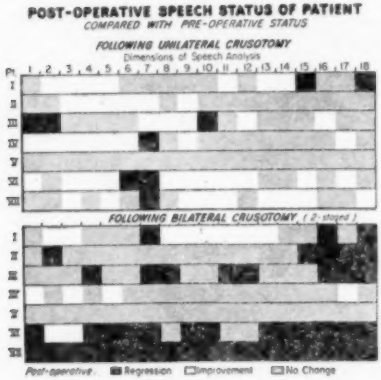

FIGURE 1. Post-operative speech status compared in 18 dimensions with pre-operative speech status of seven patients who underwent bilateral crusotomy in two stages.

Results

In the group of seven patients subjected to bilateral crusotomy, all exhibited generally improved speaking ability after the first operation. Following the second operation, only one patient showed additional general improvement. Among the six remaining, either no general improvement occurred (even though progress was achieved in isolated dimensions) or some general decrement was noted.

Following the first operation five of the seven patients were noted to have regressed in one to three dimensions. The dimension indicative of greatest decrement was *volume*. In this regard, three patients regressed. Only seven of the 18 dimensions were adversely affected (Figure 1).

Following the second crusotomy, notable improvement was recognizable in 11 dimensions by at least one but no more than three patients. The only dimension in which three subjects showed improvement was that relative to *tension*. However, there was apparent decrement in all 18 dimensions by at least one and no more than five patients. The greatest decrement was noted in the dimensions of *assurance* and *articulation*, in regard to each of which five patients displayed some regression. Four patients regressed in respect of *volume* and *fluency*. One patient regressed in all dimensions. Another exhibited no apparent speech change following surgery.

Among the second group of eight patients who had undergone only unilateral crusotomy, some improvement was recorded in all 18 dimensions. Figure 2 indicates that Patients X, XIV and XV improved markedly in speaking ability, whereas Patient VIII regressed in all but three dimensions, thus showing a considerable loss.

Figure 2 reveals that at least one patient improved in each dimension and six patients improved in each of two dimensions, namely, *effort required to produce sound* and *quality of mobilization*. Five patients improved in each of two other dimensions, namely *voice quality* and *assurance*.

Two patients in Group II had no useful emissive language at the outset. Each of them was improved in three dimensions: *effort required to produce*

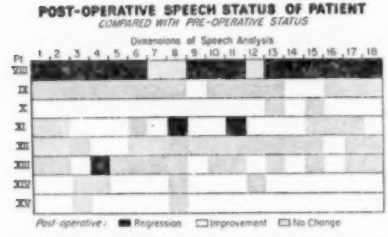

FIGURE 2. Post-operative speech status compared in 18 dimensions with pre-operative speech status of eight patients who underwent unilateral crusotomy.

sound, quantity of verbalization and *assurance.*

One patient whose pre-operative speech was considered within normal limits showed some post-operative improvement in *pitch, voice quality* and *assurance.*

Finally, in considering both tables, 15 patients underwent unilateral crusotomy. Only one of these suffered any gross deleterious effect on post-operative speech. Three patients remained comparatively static. The 11 remaining gained in over-all speech skills.

Summary and Discussion

This is a preliminary report of a study undertaken to determine the effect of midbrain crusotomy on 15 cerebral palsied tension athetotic patients. Seven of these underwent bilateral operation. An interval of three to six months elapsed between the first and second operation. Eight patients underwent unilateral operation only.

The patients were studied and evaluated with respect to a variety of psychological, motor and coordinative skills. Among the latter, speech performances were recorded on tape pre-and post-operatively and subsequently analyzed for changes presumably imputable to operation. Eighteen dimensions were employed as a basis for analyzing the results: (1) breath control, (2) control of speech musculature, (3) tension, (4) pitch control, (5) voice quality, (6) inflection, (7) volume, (8) vocalized inhalation, (9) effort required to produce sound, (10) sustained vocalization, (11) oral pressure, (12) involuntary vocalization, (13) length of verbal responses, (14) quantity of verbalization, (15) intelligibility, (16) assurance, (17) fluency and (18) articulation. Post-operative performances were rated as showing 'improvement,' 'no change' or 'regression' in respect to each dimension.

Taken as a group, the patients exhibited wide variability in changes of speech following operation, ranging from marked improvement to severe regression. Similarly, a comparison of the speech performances of patients in regard to the various individual dimensions revealed a wide variation. No one dimension appeared to have been pre-eminently affected by surgery either for improvement or regression. On the whole, the greatest improvement in speech followed the first stage crusotomy. Little or no benefit seemed to follow the second stage procedure and in one case a wholesale regression was apparent. Follow-up recordings made from six to 14 months after initial surgery indicated continuing speech improvement only in patients subjected to unilateral operation. These and additional patients will be followed to ascertain the optimal improvement that can be expected.

The possibility must be admitted that the failure to demonstrate a specific effect of intermediate crusotomy upon speech, as analyzed in terms of the dimensions adopted, may merely reflect the ineptness of the dimensions themselves. As stated above, the dimensions were adopted rather arbitrarily. They may undergo revision to better advantage as experience is enhanced.

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The Pharyngeal Flap Operation: Role Of The Speech Therapist

John M. Palmer

In modern rehabilitative practice, the speech therapist may be called upon to perform as a member of a team, whether structured or not, and may have as his objectives the minimizing of the effects of anatomic and physiologic insufficiencies which produce speech qualitatively deviant from normal. The therapist may be called in prior to or subsequent to surgical procedures whose objectives are to remove that insufficiency.

Specialists in our field are uniquely qualified to serve as rather careful evaluators of the speech output of patients who have had surgery for palatal deficiencies. Medical specialists have recognized these contributions and refer to speech therapists for rather objective evaluations of conditions before and after surgery. Evidently, the therapy administered also has been successful enough to merit recognition and encouragement by allied specialists.

The particular surgical procedure being evaluated here had been designed to improve the speech function of individuals with palatal insufficiency. The operation, the pharyngeal flap, is not new other than in the way it has been accepted and used. It has been known for at least 90 years (*8*), probably more, at intervals falling into disuse only to reappear with new acceptance each time.

The rationale of the surgery is not complex: when velopharyngeal closure is impossible or difficult because of velar insufficiency, physiologic unity of the velum with the posterior pharyngeal wall should remove that insufficiency and improve the closure aspect of the mechanism, and the resultant speech should approximate more closely that of a normal mechanism.

The surgical procedure differs from patient to patient, as one would expect, and with the surgeon in charge. The patients reported in this study were operated by one surgeon who describes his technic as follows (*1*):

> The operation consists of raising a tongue-like flap of mucous membrane and submucous tissue with its free apex elevated from the region just behind the adenoids and with its base in the pharynx just behind and just below the palate. This piece of tissue should be about two-thirds the width of the pharyngeal space behind the palate. The tongue-like piece of tissue depends on its circulation to come from the attached base, which is left intact. The free end is brought forward to the underside of the soft palate and is sutured there and allowed to heal as a bridge between the soft palate and the posterior nasopharynx. Healing of all raw surfaces is generally rapid. The patient is able to breathe on either side of this bridge and is yet able

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to close the opening between the mouth and nasopharynx by bringing the lateral pillars to meet the sides of the velopharyngeal flap.

Variations of the surgery are few. Location of the base of the flap may be either superior or inferior; that is, the 'hinge' may be below the palate with the free end swinging up and forward, or the reverse might be true with the hinge high and the flap swinging downward and forward. Too, the flap may be sutured to the oral or the nasal surface of the velum.

Pharyngeal flap procedures are performed not only for cases of congenital cleft palate but for other defects as well. It is, of course, appropriate to consider it when a stalemate of speech training has been reached in cases previously repaired by other technics. It has also been utilized with older patients where some improvement, but not enough, has been attained. It is useful in cases of foreshortened palates. And, it is a technic applied to persons with paralyzed or partially paralyzed palates. The literature (*2, 3, 4, 5, 6, 8, 9*) indicates 'gratifying' results in many of these cases.

In the common case of the child with a repaired palate which remains insufficient, the flap may be the operation of choice to better effect closure by (1) adding the new tissue in the gap and/or (2) stretching the palate by the resultant tension from the flap. Superiorly-based flaps are sometimes the operation of choice for children to accomplish both these ends.

Earlier evaluations have been made of speech changes occurring following pharyngeal flap procedures. It has been noted, generally, that speech has become somewhat less nasal, oral emission of air stream has been improved and articulation therapy procedures have become more rapidly effective.

In the present study, three patients of varying palatal conditions were evaluated. These were the first three patients in a series to be seen over a long period of time by Bill (*1*). They had been operated according to the earlier description of the surgery. All patients were adult females. Patient 1 had congenital insufficiency which had not been satisfactorily alleviated by routine palate surgery technics. Patient 2 had an insufficient palate as the result of surgery for pharyngeal carcinoma some 20 years prior to the present surgery. Patient 3 had a partially paralyzed palate of traumatic origin. All patients presented speech deviations typical to the defect: a noticeable degree of hypernasality, poor breath stream direction through the oral cavity, nasal emission of breath and some degree of articulation deficit.

Recordings were made using a reading passage including all American speech sounds. Instrumentation was composed of high quality recording facilities in sound-treated environments. Such recordings were made in the 24-hour period preceding surgery, in the 24-hour period following surgery and at one-week intervals thereafter. Observers evaluating the speech of these patients included sophisticated listeners hearing the recordings over high quality playback equipment in sound-treated environment. A rating scale of degree of hypernasality was constructed and used.

The first effect noted by observers and patients alike was the expected and rather obvious quality of 'denasality' immediately following surgery. The swollen tissues of the mechanism most certainly were causally related

to this 'cold-in-the-head' quality and did not prove surprising to any observer. However, it proved profitable to warn subsequent patients that this change would occur but would be temporary in duration.

The second effect was studied by subjecting the sample recordings to the panel of sophisticated listeners rating the voices on the basis of degree of hypernasality to determine the degree of difference in *before* and *after* recordings. Inspection of the data indicated obvious differences between the judgments of pre-operative and post-operative recordings insofar as consideration was made of the degree of hypernasality. The data was not subjected to more intensive statistical treatment as a result of this inspection.

Improvement in a positive direction, that is, in the *lessening* of the degree of hypernasality, was apparent to all observers. None of the patients achieved a truly 'normal' voice quality, but the amount of improvement was definitely noticeable in all cases.

It is of value to note that 'perfect' vocal quality is the goal sought by some patients, especially the more mature ones. Failure to attain this goal, in spite of obvious improvement, has its effect upon the patient. Speech therapy technics can be effectively applied to such patients, as well as others, with what appears to be considerable success. Such improvement is not always rapid. In one case, an obvious change occurred as a result of the surgery, but a four-month period of speech therapy produced a dramatic extension of the change in the individual's voice quality in the direction of less nasality. Such therapy was based upon technics described by McDonald and Baker (7); little of the '*blowing exercise*' type of therapy was administered. Routine articulation therapy has been administered in each case.

Directed air stream evaluations have indicated improvement in this area also. The patients have shown improved abilities to perform in speech areas as well as such self-satisfying acts as whistling, balloon blowing and cheek puffing, they report.

Summary

In this stage of study, the changes in voice effected by the pharyngeal flap operation for palatal insufficiency appear to be positive, toward a reduction of the degree of hypernasality, an improvement in directed air stream and a better acceptance of their voices by the patients concerned. Although not all patients demonstrate sufficient reasons for performing the surgery, it has apparently produced such changes in a number of cases differing in type and degree of involvement as to be seriously considered by the rehabilitation team members interested in patients with palatal defects. It appears obvious that the pharyngeal flap surgery may well be a technic worthy of further study by both surgeons and speech therapists.

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Speech Therapy For The Pre-School Cleft Palate Child

Elise Hahn

A puzzling question is frequently asked of surgeons, pediatricians, orthodontists and speech therapists who work with the cleft palate child: when should speech therapy begin? In the past, many surgeons have answered, 'After the closure of lip and palate.' Some pediatricians and teachers have said, 'At five years; a younger child will not cooperate on drill.' An orthodontist may advise waiting until the alignment of the teeth has been improved, since such changes, he may believe, will obviate speech therapy.

The answer to this question is related to the concepts of normal language development and to the experiences with children whose language is long delayed. Usually the first word appears between the twelfth and eighteenth month; but prior to this time, the infant has babbled and played with sound, received gratification from oral movements and used the structures vigorously in sucking, chewing and swallowing. When the speech therapist works with children who have pronounced delay in language development, he sees the effects of this delay. The child has met with repeated failure in communication: he cannot express or organize his feelings, explain his needs, structure his play with any complexity or gain acceptance with his peer group. He reacts strongly to such frustration, turning away from contacts with speaking individuals or attacking those whose fluency represents a threat to him.

If understandable language is delayed, do all of these maladjustments right themselves when this child is taught to talk? In the first place, it is not going to be easy to teach him to talk; the withdrawn or hostile child cannot learn readily no matter how great his need is. He has found ways to protect himself in an uncomfortable world, and he will resist change. Secondly, patterns of muscle function practiced in his idiosyncratic manner of communicating cannot be modified for a long time, even if the child cooperates. He has also realized his difference, both in appearance and language, and he has no mitigating social skills to offset the pain of these perceived differences.

To prevent maladjustments common to all children with a delay in the development of understandable language, when should speech training begin? If one changes the concept from that of speech correction to language development, the answer will become: as soon as the lip is closed and as soon as the child gives evidence of responding to his mother's production of sounds.

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The mother is obviously the early teacher. However, she must be prepared and taught by the professional speech therapist. In addition to preventing poor habits and frustrations in communication, the positive benefits from the early start with the mother may be cited:

(1) If the mother can be shown how to work with the child from early infancy, the mother-child relationship will be strengthened. The chances are good that her objectivity can be increased and her feelings of guilt alleviated.

(2) The muscle movements induced in repetitive sound-making and vigorous sucking, chewing and swallowing will contribute not only to better coordination but may affect defective structures beneficially. Frequently, surgeons will reconstruct the defective lip with great care and skill, but no one teaches the mother how to help the child to manipulate these structures.

(3) Early training attracts the the child's attention to sound production, induces vocalization at nearly the same period as that in which the normal child begins to babble and play with sounds; it also builds up sound discrimination.

The question now becomes: how should this speech therapy be conducted? Speech practice is not construed as drill in blowing horns, whistles and balloons, nor is it devoted to repetition of [b], [d] and [g] or other discrete sounds not related to the child's communication or play. This speech therapy follows the steps of normal language development.

The children may be divided into two groups: (1) those younger than three, whom the therapist puts on a referral basis, interviewing the mothers every two or three months, giving them instructions and listening to their problems and (2) those between three and five years with whom the therapist will work directly.

In the first meetings with the mother of the infant, the therapist finds out what descriptions and explanations have been given to her by her doctor concerning the child's oral structures and their difference in formation and function from normal structures. Much of this material can be given in the doctor's office, but sometimes it is not presented in any detail. Also, the mere reading of printed data will not suffice. The therapist must adapt the material to the apparent intelligence and emotional stability of the particular mother and will answer her frequent questions. If a pediatrician is carrying on such an advisory program, extended over the years of development, the speech therapist cooperates with the doctor.

The therapist explains why lip movements must be strong. If lip movement cannot be strengthened through sucking because the palate is still to be operated upon, then the mother can play with lip sounds, smacking her lips often as the child is fed, making loud pressure noises as the lips are drawn in and released, playing with a fish in the bathtub that 'talks' to the child by producing a fascinating, wide open [ɑ][p]-[ɑ][p]-[ɑ][p]. The point is this: the mother can induce vigorous lip action during the child's sucking, can make sure that he listens to and observes such action or can induce play with non-communicative enjoyable sound-making.

Blowing through the mouth may also be taught, but it does not re-

ceive the emphasis it once had when a speech therapist often indicated that this was the only activity to undertake at home, presenting it almost as a cure-all. Frequently, blowing exercises are put off because they set up unnecessary tensions in the oral area.

Next, strong jaw action is stressed. Research has shown that if a speaker opens his mouth widely during sound production, the oral resonance offsets the nasality to some degree. With more extensive jaw action, the size of the mouth opening compensates somewhat for an atypical opening at the naso-pharyngeal port; the vocalized breath stream tends to pour out of the mouth rather than to be entrapped in the nose. The child is taught to 'yawn big' in play; he chews energetically; he is encouraged by example to make wide open sounds in babbling.

Tongue tip action must be built up. Often, if swallowing is atypical, and velar and pharyngeal muscles weak in movement, the body of the tongue is raised instead of the tip in sucking and sound production. The baby must be shown the fun of tongue clicking and particularly of licking with the tip.

Often, the cleft palate child, in inhibiting his speech at a later stage of development because he knows that he sounds different, uses a minimum of inflectional changes, which may affect his expressiveness in the use of voice. In infancy, his mother can encourage him to make noises with a wide range of pitch. If the noises are loud, she has to learn to stand it and to appreciate the fact that loudness often induces wide, animated production of sounds.

On the language development side, this mother is now told that the child's first words must be preceded by much naming on her part and by a great deal of lively conversational monologue during the period just prior to the child's first birthday when the baby is watching and listening to her with interest. She is shown how to bring about imitation of her naming of familiar objects. Such objects should be fondled, manipulated, tasted or smelled by both child and parent, with mutual enthusiasm. Imitation will begin as the child identifies himself with this loving, pleasure-giving and comfortable parent. The mother can lead the child into short phrases related to action, repeating over and over as she acts with him: 'Open the door. Close the door. Drink the milk. Pat the doggie.' She always maintains the rhythm pattern characteristic of adult speech while she uses a wide range of pitch to attract the child's attention.

The mother is then taught to reward the imitative attempts by her expression and tone of voice. Her teaching goes on all the time, during the child's eating periods, in his bath, during physical play and when mother or father lies on the bed with the baby. There is a consistent bombardment with naming-words and short phrases; yet at no time is either father or mother taught to demand imitation. Rather, they are shown that imitation must be a spontaneous response growing out of the close relationship between mother and child.

When the child moves into the period when he is initiating his own words and phrases, often recognizable only to the parents who have worked consistently to get him this far, the mother is instructed in the production of the lip closure sounds, [p], [b] and [m], and the tongue tip sounds,

[t], [d] and [n], as well as [f], [l] and [r]. These the child can see and he may attempt them in vocal play or in naming, with the mother's help. She is also taught that the difficult sounds, such as [s], [z], [θ] and [ð] must wait until a later date.

In such a program, much is achieved by the third year: (1) The child has become aware of and responsive to sound making; (2) he uses his speech musculature vigorously, however defective it may be; (3) he is developing an ability to discriminate between sounds; (4) his vocabulary is growing as well as his ability to handle language structures effectively. Even more important, such a program has helped to develop a more responsive, enjoyable and relaxed mother, because some of her anxiety has been alleviated and because she is taking an active part in her child's progress. The child is now ready to work with a stranger, practicing improvement of voice and articulation more directly.

If the therapist judges the child to be ready, the direct work begins. This does not mean that the child will receive drill on part processes, such as production and drill on single sounds. The training is still in a language context. Between three and five years is normally a time for development of dramatic play. As such role playing becomes more complex and socialized, greater skill in speech is needed to structure the complex play.

The therapist plays with the child as a partner, not as an observer. The materials are objects which suggest creative, unified activity: a boat or truck that can be loaded and unloaded, a farm full of animals needing to be fed and fenced in, a gas station with cars to be parked and gasoline to be sold. The therapist suggests the play but allows the child to construct it. Since children move into dramatic play with such ease, the therapist will have no difficulty in starting it as he verbalizes an appropriate role with deceptive casualness: 'This is the gas pump. I can sell you some gas. How much does your car need? . . . Do you need water too? . . . Do you need air in your tires? It goes [s]-[s]-[s]-[s]. . . . Now you can be the gas station man and let me run the car.' If the therapist plays genuinely and without undue demands, only a very rigid child can resist such role playing.

The therapist knows which sounds he will stress during a given session but will wait for or lead the child into the use of a sound in a genuinely communicative word or phrase. Then both will stop the play and practice for a moment before the mirror, for the quite obvious reason that that word or phrase has to sound right if some character in the play situation is going to use it. How would you know what the garage man meant if he said, 'Kark you car here'?

For example, if the therapist finds that sounds involving lip closure are weak or absent, he may want to drill on [b]. He points to the large boat. 'This is our boat. We can both load it. Do you want to be the man who puts the boxes and barrels on the hook? Then I'll be the man who runs the crane.'

The therapist says in character, 'What are you putting on the hook down there? . . . Boxes? . . . Barrels?' The therapist demonstrates how the man would say the *b* in 'boxes' and 'barrels,' calling attention only to accuracy on the initial consonant, describing at the child's level of com-

prehension the flow of the air stream, the lip closure and quickness of release. The therapist demonstrates the single sound and then the word and phrase which contain the sound. Both drill. The therapist is sensitive to the amount of drill the child will permit before he demands to go back to the play situation. Then he calls down into the hold of the boat, 'Where shall I put these boxes?' The child points. The therapist whispers, as if it were a stage cue, 'Put them in the bottom of the boat.' The child automatically repeats, in character. The practice and repeated play fix the sound being stressed in this communicative context. Any drill on single sounds is immediately made realistic because such drill means success on words needed to structure this engrossing play situation. Such a procedure makes it easy to transfer the sounds to real life communication.

Fortunately young children want to play with the same boat and gas station and farm over and over. The therapist has only to change his point of emphasis to new sounds to be corrected and plan ahead how words containing the sounds can be brought into the situation meaningfully. This is no set game; this is practice on language used in a life-like situation.

By the time a child is five, he is using language creatively and enjoys its use. No attempt has been made to correct nasality on vowel sounds. He may now be ready to study the action of his velum, to see how and to understand why he must learn to improve its function. Sometimes, however, with this early training, the need to work on isolated vowels has dropped away. The vigorous action and concentration on articulated sounds in communication has made all of the speech more oral. The need for further therapy will of course depend upon the severity of the structural differences.

At this time, if further operations and orthodontia change the shape and manipulation of the child's oral structures, he is ready to make his own adaptations to meet these changes because he is motivated to improve language and is emotionally prepared for such changes, and because he has become a judge of good and poor speech.

The speech therapist would like to make this statement to all doctors and orthodontists who must guide the development of the cleft palate child: 'If this were your child, would you still say that speech therapy should wait until he is five years of age, until he experiences frustration in communication, is isolated from his peer group on the basis of his great difference in language and develops personality attributes of hostility or withdrawal which will persist through life?'

Two important points should be made in this plea for early speech therapy: (1) more speech therapists must be prepared to train and advise mothers and must learn how to approach speech therapy in relation to normal language development and (2) more doctors must realize the importance of referring the mother to the speech therapist at the earliest possible date.

Clinical Notes

Esther L. Herbert, *Editor*

Hearing Impaired Children in Community Recreation and Camping Programs

The following article is a summary of a report, 'Demonstration Recreation Project: Hearing Impaired Children in Community Recreation and Camping Programs,' made by the Baltimore Hearing Society, Incorporated; Robert H. Dombro, Recreation Therapist.

Although handicapped children may be unable to 'keep up' with 'normal' children in such endeavors as education and everyday accomplishments, they can, with expert and understanding leadership, 'keep up' by their participation in recreation and camping activities. It was with this purpose in mind that the Baltimore Hearing Society began a five-year demonstration project designed to 'integrate deaf, hard of hearing and aphasic children with hearing youngsters in year-round recreational and social programs.' The Baltimore group was cognizant of the fact that many children with handicaps are perplexed when denied participation in the various community recreational and social programs provided for the non-handicapped. Further, such children may well be neglected by leaders and 'normal' children either because of their handicap or because of their inability to participate in existing programs.

The demonstration project, initiated in 1955 by the Baltimore Hearing Society with the cooperation of the Baltimore Council of Social Agencies and the Community Chest, has now completed its third year. At present more than 100 children are participating in year-round camping, scouting and recreational activities with hearing youngsters.

For those children who have had no prior opportunity to participate in recreational groups, 'readiness' programs are provided. These programs serve two functions: (1) the children learn basic recreational and related communication skills and (2) the staff of the hearing society gains a thorough knowledge of the children's capabilities. After the readiness period, the children are placed in existing community recreation and camping activities.

Case reports are given of two profoundly deaf youngsters who participated in a day camp during the summer of 1957. At Camp Milldale, hearing impaired children were participants with hearing children for a seven-week period. The only distinction made was that the non-hearing youngsters received daily speech therapy. Therapy was developed around camp activities, using the appropriate vocabulary and teaching conversational idioms according to each child's needs. Comparison of the progress made by two youngsters who had practically the same diagnosis indicates that each child made gains, but

Contributions to Clinical Notes should be addressed to Esther L. Herbert, Los Angeles City Schools, 1822 E. 7th St., Los Angeles 21, California.

that they adjusted to hearing children differently and a marked difference in language development was evident. 'Progress has to be measured in relation to the individual child after considering his hearing and language handicap and his ability to participate in recreational groups when he first entered the project,' the report states.

During the first two years of the project, the parents did not have to make initial contact with the camp, scout or recreation personnel. The recreation therapist assumed these responsibilities. At the beginning of the project's third year, the responsibility for placing the children in various activities was shifted to the parents, who, with the therapist, have formed an effective team so that children are being placed in a variety of programs without much difficulty.

As has already been noted, a key figure in this program is the recreation therapist, who, in addition to the duties described above, provides several services before, during and after camp season. Records are gathered from therapists and recreation personnel who work with the child during the school year and are made available to the camp staff. During the camp season, the recreation therapist visits the camps and recreation centers to discuss progress of the children with their counselors and speech therapists. After camp, the children's experiences are related to his teachers and therapists and recommendations of his camp counselors for recreational activities during the school year are followed. This liaison work is carried out for each child involved in a summer activity.

The Baltimore report states: 'The health agency has the major responsibility for providing the basic skills needed by the handicapped child who will enter community recreation and camping activities, and the recreation personnel of these agencies can help make the transition effective. . . . The responsibility for providing activities outside of the health agency setting should be taken over by public recreation agencies. These agencies are designed to serve all children in the community, and children with handicaps should get their fair share of services.' At present many public recreation agencies wait until health agencies request service. Frequently, the recreation agencies are unprepared to offer staff, program or facilities. If the agencies have a 'special' recreation supervisor, this staff member could more adequately determine the needs and begin to find community resources to meet them. To carry out this responsibility, the public recreation agency should employ a supervisor of 'special' recreation. The physicians, therapists, teachers and parents would then have a central office for referral and information regarding facilities within the community for handicapped youngsters.

The Community Chest, which provided funds for the Baltimore demonstration project, has suggested that it become a permanent program conducted by an agency such as the Bureau of Recreation. Further, the project has expanded its purpose and is now concerned with providing year-round recreational activities to all children with handicaps. In the Baltimore area, the Maryland Society for Mentally Retarded Children, the Heart Association of Maryland, the Baltimore League for Crippled Children and Adults and the Hearing Society conduct recreation and camping programs which include children

who are referred to each one of these agencies. Staff members, however, agree that handicapped children need the opportunity to take part in activities with 'normal' children and that the public recreation agency should employ a specialist to take the responsibility for this service.

E. L. H.

Appraisal Form for Speech and Hearing Therapists

Increased emphasis is being placed on the up-grading of teachers. Many school systems have developed forms for the evaluation of teachers and their techniques. While there are general principles underlying all good teaching, which apply to all areas of education, an evaluation form slanted more specifically toward the work and techniques of the speech and hearing therapist may help the local administrator and supervisor to make a better assessment of the effectiveness of persons working in this specialized field.

Any improvement in the speech and hearing program must come primarily through the improvement of the therapist. He must be aware of his strength as well as weaknesses. In order to improve his teaching effectiveness he must: (1) be aware of his problems, (2) be dissatisfied with his method of teaching or the selection and use of materials in those areas in which he considers himself weak, (3) be sincere in his desire to change concepts and teaching practices where indicated in order to effect improvement and (4) be able to discipline himself to follow through on the suggestions made by the supervisor for the betterment of the program.

The atmosphere in which this appraisal takes place is of the utmost importance if it is to result in professional growth. The speech and hearing therapist must not feel that it constitutes a threat to him as a person or that his position is thereby jeopardized. It is essential that he feel emotional security in dealing with his problems if he is to be motivated to solve them. The basis for self improvement lies in a sense of personal growth and a feeling of satisfaction derived from the work.

Supervision is of no value unless it brings about better learning situations. Assessment made as objectively as possible is the first step toward improvement. The appraisal should be equally acceptable to the supervisor and to the speech therapist.

The appraisal form now used in Ohio was designed for the therapist to rate himself, the supervisor or administrator to give a rating and a third or final rating to be the consensus of both. The following outline lists the points which are rated as outstanding, successful, showing growth, needing help or unsatisfactory:

Appraisal Form

I. Personal Qualities

A. Individual Characteristics

1. Appears appropriately dressed and well groomed before students
2. Has well modulated voice of good quality
3. Has speech free from defects and normal hearing
4. Uses adequate vocabulary and English free from grammatical errors
5. Maintains a well-poised manner in the face of petty annoyances
6. Evidences judgment and tact
7. Is punctual and dependable
8. Practices the kind of good manners that come of a thoughtful awareness and consideration of others
9. Shows enthusiasm for the field of speech and hearing
10. Has hobbies and interests other than his profession.

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B. Teacher-Pupil Relations

1. Understands and shows sincere interest in children.
2. Avoids discussion with others of children's speech difficulty in their presence
3. Creates an atmosphere in which children feel free to discuss their problems
4. Commends or praises more than rebukes
5. Goes out of way to help unattractive or troublesome students
6. Deals with children in a kindly, firm and impartial manner

C. Teacher-Staff Relations

1. Supports the accepted policy of the school without derogatory or private comments
2. Works with other teachers on school projects without undue concern as to who gets the credit
3. Goes out of way to volunteer assistance or to help others
4. Attends as many teachers meetings as schedule permits
5. Makes friends with other teachers and joins in their social activities
6. Cooperates with other personnel concerned with child-welfare
7. Seeks advice from principals and supervisors
8. Welcomes constructive criticism and profits from it
9. Makes well-organized written reports to administrators at regular intervals concerning status of the program
10. Informs principal prior to change in schedule

D. Teacher-Community Relations

1. Participates in community affairs by joining church, clubs and civic groups
2. Establishes good working relationships with other agencies concerned with child welfare.
3. Gives talks to civic groups concerning the speech and hearing program
4. Under guidance of the superintendent, prepares articles for the press concerning progress of the program
5. Supports and participates in parent-teacher groups
6. Maintains close contact with parents of children enrolled in therapy through home calls and interviews at school
7. Assumes just share of community financial responsibilities

II. Professional Qualities

1. Belongs to state and national associations of speech and hearing therapists
2. Is alert to finding new materials and projects with which to enrich teaching
3. Adds to professional library each year
4. Attends district, state and national conferences in so far as finances permit
5. Adheres to the accepted ethical standards of the profession
6. Has established program in conformance with minimum standards established by the State Board of Education

III. Teaching Performance

A. Class Management

1. Begins and ends each class on schedule
2. Requires children to enter and leave class in an orderly manner
3. Maintains a warm friendly atmosphere which promotes pupil confidence without loss of dignity
4. Schedules each child in a group (or individually) which permits him to work to capacity
5. Encourages and guides each child in getting and working toward appropriate goals for himself
6. Wastes no time in changing from one activity to another
7. Disciplines in such manner as to encourage pupil self-control
8. Makes the place in each school where speech class is held as attractive as possible
9. Displays pictures and materials which are meaningful in terms of work being done
10. Keeps consistent and accurate records of work being done
11. Has established (under supervision

of the local administrator) a system of permanent records in line with those used by the school
12. Keeps own speech to a minimum

B. Teaching Techniques

1. Begins therapy only after complete diagnostic speech and hearing tests have been given
2. Adapts activities to the age and speech development of the children
3. Organizes each lesson so that each child is participating at his level of ability
4. Shows evidence of careful lesson planning. Uses a variety of techniques. Varies work from group to group according to need
5. Uses progress charts to maintain interest
6. Motivates home practice by assignment of work within the child's ability to do
7. Keeps the classroom teacher informed of the children's progress and gives her directions for follow-up that are simple and within her time and ability to carry out
8. Correlates speech class activities with those of the classroom, playground and home
9. Shows ability to solve own teaching problems

Elizabeth C. MacLearie

State of Ohio
Department of Education

Films On Audiology: A Brief Annotated List*

Sue Earnest

Robert W. Gillen

Acoustics

FUNDAMENTALS OF ACOUSTICS: Encyclopedia Britannica Films, Inc., 1150 Wilmette Ave., Wilmette, Ill.; 1933 (rev. 1952), 10 min., sound, black and white, purchase $50, rent $2.50.

Shows the phenomenon of hearing and the modification of sound between source and hearer.

PENDULUMS, TRAVELING WAVES AND THE COCHLEA: Psycho-Acoustic Laboratory, Harvard University, Cambridge, Mass.; 45 min., silent, color, loan.

A challenging film for adult consumption, which demonstrates with pendulums, artificial cochlea, skin resistance on the arm, the movement of sound at various pitches.

YOUR EARS AND NOISE: H. P. House, M.D., 1136 W. Sixth St., Los Angeles 17, Calif.; 1957, 12 min., sound, color, free loan.

Describes the characteristics of noise and suggests limits beyond which noise becomes a hazard to hearing.

Anatomy

ADVENTURE IN HEARING: Sonotone Corporation, Elmsford, N. Y.; 25 min., sound, free loan.

Shows how the ear functions, how a hearing aid helps and how an audiometer works.

EARS AND HEARING: Encyclopedia Britannica Films, Inc., 1150 Wilmette Ave., Wilmette, Ill.; 1950, 11 min., sound, black and white, purchase $50, rent $2.50.

Portrays the physiology of the human ear by animated drawings and close-up photography. Demonstrates three causes of impaired hearing and the use of a hearing aid.

HOW THE EAR FUNCTIONS: Knowledge Builders, 625 Madison Ave., New York 22, N. Y.; 1940, 11 min., sound, black and white, purchase $40, rent $2.

Explains sound waves, functions of the tympanic membrane and ossicles and other parts of the ear.

HOW WE HEAR: Bray Studios, Inc., 729 Seventh Ave., New York 19, N. Y.; 1939, 6 min., silent, black and white, rent $1.25.

Demonstrates the functions of outer, middle and inner ear and how sound waves reach the brain.

THE INNER EAR: Medical Film Guild, Ltd., 506 W. 57th St., New York, N. Y.; color, sound, 35 min., available through Grant for Instruction.

Captures anatomy and function through optical enlargement of the structures, time magnification, artificial transparency of inner ear membranes and demonstration of fluid movements by suspended particles.

YOUR CHILDREN'S EARS: British Information Services, 30 Rockefeller Plaza, New York 20, N. Y.; 1946, 16 min., sound, black and white, purchase $55, rent $2.50.

*All of the films are 16 mm. For copies of this list, write to Kenneth O. Johnson, 1001 Connecticut Ave., N.W., Washington 6, D. C.

Sue Earnest (Ph.D., University of Southern California, 1947) is Professor of Speech, San Diego State College, and Robert W. Gillen (M.A., University of Southern California, 1954) is Assistant Professor of Speech, Los Angeles State College.

Illustrates the structure of the ear and dangers of the common cold.

Audiometry

THE EVALUATION OF HEARING IN PRE-SCHOOL CHILDREN WHO LACK NORMAL SPEECH: Motion Picture Library, American Medical Association, 535 N. Dearborn St., Chicago 10, Ill.; 1954, color, sound, 28 min., rent $3.

Presents problems in diagnosis of children impaired in communication and some diagnostic procedures. Illustrates, with diagrams and patients, diagnostic possibilities with relation to disorders shown.

LIFE BEGINS AGAIN: Western Electric Co., Motion Picture Bureau, 195 Broadway, New York 7, N. Y.; 1939, 15 min., sound, black and white, free loan.

Film for which Harvey Fletcher was consultant showing the use of an audiometer and the fitting of a hearing aid.

TO HEAR AGAIN: description under 'Education.'

Shows the complete diagnostic program in a U. S. Army rehabilitation center. Includes testing the hearing of a malingerer.

TOO YOUNG TO SAY: University of Southern California, Cinema Department, Los Angeles, Calif.; 1955, 15 min., sound, color, purchase $120, rent $4.

Procedures in testing the hearing of the pre-school child, demonstrating how he is conditioned to manipulate toys in response to signals given by the clinician.

THE TREATMENT OF DEAFNESS BY PROSTHESIS: Medical Film Guild, Ltd., 506 W. 57th St., New York, N. Y.; color, sound, 35 min., available through Grant for Instruction.

Successful cases, materials used, fitting techniques and audiometric results.

Education

EARS THAT HEAR: Lexington School for the Deaf, 904 Lexington Ave., New York 21; 1946, 15 min., sound, black and white, free loan from Volta Bureau, 1537 35th St., N.W., Washington 7, D. C.

Presents the program of the Lexington School for the Deaf, including aspects of speech training, nursery play, hearing aid classes, audiometric testing and training in special skills.

EDGE OF SILENCE: Ideal Pictures Corp., 65 E. South Water St., Chicago 15, Ill.; 1956, 30 min., silent, color, free loan.

Tells how the lives of a young girl and a middle-aged executive were influenced by loss of hearing. Shows the results of neglect and explains how most individuals can be helped.

EDUCATION FOR THE DEAF: British Information Services, 30 Rockefeller Plaza, New York 20, N. Y.; 1946, 41 min., sound, black and white, purchase $125, rent $6.

Portrays methods of teaching British deaf children how to speak.

THE INVISIBLE HANDICAP: American Hearing Society, 1537 35th St., N.W., Washington 7, D. C.; 15 min., silent, black and white, rent $1.50.

Stresses the hard of hearing child whose handicap is not so obvious as that of the profoundly deaf child.

THE JOY OF LISTENING: Michigan Department of Health, Hearing Conservation Section, Lansing 4, Mich., 13 min., black and white, sound, free loan.

Film on hearing conservation designed for parents. Traces three children through complete hearing conservation procedures and outlines follow-up.

LISTENING EYES: University of Southern California, Cinema Dept., Los Angeles 7, Calif.; 1947, 17 min., sound, color, free loan.

Illustrates the work of the John Tracy Clinic for pre-school deaf children and their parents; methods used to develop children mentally, physically, emotionally and socially; sense training, speech reading and speech correction.

OPEN DOORS: Springfield Hearing League, Springfield, Ill.; 20 min., silent, black and white, rent $1.50.

Presents work of the Springfield Hearing League.

OUT FROM SILENCE: Society for Visual Education Inc., 1345 W. Diversey Parkway, Chicago 14, Ill.; filmstrip, $19.50.

Produced by the University of Denver. Three units: (1) Nature of Hearing and Hearing Loss, (2) Safe-guarding Your Hearing and (3) Rehabilitation of the Hard of Hearing.

PAY ATTENTION: New York University Film Library, 26 Washingtan Pl., New York 3, N. Y.; 1949, 30 min., sound, black and white, purchase $120; rent $6.

Based on work with hard of hearing children at the Child Study Department, Vassar College. Suggests ways in which parents, teachers and specialists can assist.

REACH INTO SILENCE: John Tracy Clinic, 806 W. Adam Blvd., Los Angeles 7, Calif.; 13 min., sound, color, free loan.

Intended to recruit teachers of the deaf.

THE RIGHT TO HEAR: State University of Iowa, Bureau of Visual Instruction, Extension Division, Iowa City, Iowa; 1942, 31 min., sound, color, purchase $175, rent $6.

Emphasizes the need for a program of conservation of hearing and explains public school audiometry.

THE SEARCH: Young America Films Inc., 18 E. 41st St., New York 17, N. Y.; 1955, 25 min., sound, black and white, purchase $125, rent apply.

Produced by Columbia Broadcasting System, Inc., TV. Stresses training of residual hearing and the necessity of detecting hearing loss early.

SUSAN'S WONDERFUL ADVENTURE: Syracuse University Audio-Visual Department, Syracuse, N. Y.; 1955, 30 min., sound, color, rent $4.75.

Shows training of beginning and advanced pupils in reading, writing and speaking at the Clarke School for the Deaf.

THAT THE DEAF MAY SPEAK: Ideal Pictures Corp., 65 E. South Water St., Chicago 15, Ill.; 1952, 42 min., sound, black and white, color, free loan.

Shows progress from nursery school through junior high school at the Lexington School for the Deaf, New York City. Indicates special problems and techniques of concept and language training.

THERE IS A SILVER LINING: American Federation for the Blind, Inc., 15 W. 16th St., New York 11, N. Y.; 1954, 12 min., sound, black and white, purchase $40, rent $10.

Presents vocational and social rehabilitation of the deaf-blind.

THURSDAY'S CHILDREN: British Information Services, 30 Rockefeller Plaza, New York 20, N. Y.; 1955, 22 min., sound, black and white, purchase $75, rent $2.50.

Won the Academy Award for the best documentary short of 1954. A moving and dramatic account of youngsters aged four to seven years at the Margate School for the Deaf in England. Shows skillful teaching of concept, speech reading and speech correction.

TO HEAR AGAIN: Army Pictorial Service, 7th and Independence Ave., Washington, D. C.; 1947, 37 min., sound, black and white, purchase $50, free loan.

Shows a diagnostic and training Army rehabilitation center for men and women who have lost their hearing. Techniques of hearing aid selection, speech reading, speech correction and psycho-therapy.

TRIUMPH OVER DEAFNESS: British Information Services, 30 Rockefeller Plaza, New York 20, N. Y.; 1948, 20 min., sound, black and white, purchase $47.50, rent $2.50.

Short version of the film 'Education for the Deaf.'

THE WORLD OF SILENCE: Lutheran Institute for the Deaf, 6861 Nevada Ave., Detroit 34, Mich.; 35 min., sound, color, free loan.

Presents the program at the Lutheran Institute for the Deaf, including pre-school activities, speech reading, writing, recreation, audiometric testing and some religious education.

YOU CAN HEAR AGAIN: U. S. Veterans Administration, Visual Aids Service, Office of Public Relations, Washington 25, D. C.; 1949, 30 min., sound, black and white, free loan.

Story of a veteran with defective hearing who obtains assistance from the Veterans Administration's Aural Rehabilitation Program.

Pathology

CLINIC ON DEAFNESS: Medical Film Guild, Ltd., 506 W. 57th St., New York, N. Y.; color, sound, 35 min., available through Grant for Instruction.

Physiology of hearing, pathological difficulties, diagnostic and therapeutic techniques.

THE DEAF POST-RUBELLA SCHOOL CHILD: Lexington School for the Deaf,

904 Lexington Ave., New York 21, N. Y.; 1950, 12 min., sound, black and white, free loan.

Intended for medical, psychological and educational personnel. Shows the behavior of two groups of children born deaf because of rubella (German measles) experienced by the mother during pregnancy.

FENESTRATION OPERATION FOR OTOSCLEROSIS: New York University Medical School, New York, N. Y.; 43 min., silent, color, free loan.

Describes the fenestration operation in detail.

FUNCTION OF THE EAR IN HEALTH AND DISEASE: Medical Film Guild, Ltd., 506 W. 57th St., New York, N. Y.; color, sound, 35 min., available through Grant for Instruction.

Depicts the physical action in the hearing mechanism of the ear. Records the motion of normal and diseased ossicles reacting to music and speech.

OTITIS MEDIA IN PEDIATRICS: Medical Film Guild, Ltd., 506 W. 57th St., New York, N. Y.; color, sound, 35 min., available through Grant for Instruction.

The role of infectious diseases in infancy and childhood in the development of otitic inflammations.

AN OTOLOGICAL SEMINAR: Medical Film Guild, Ltd., 506 W. 57th St., New York, N. Y.; color, sound, 35 min., available through Grant for Instruction.

Portrays the physical aspects of ear diseases, including sereous otitis, glomus, tumor of the middle ear, inner ear lesions and acoustic trauma; explains the concepts of impedence and analyzes lesions.

OTOSCOPIC CINEMATOGRAPHY OF THE TYMPANIC MEMBRANE AND MIDDLE EAR: Hollinger Memorial Fund, 700 N. Michigan, Chicago, Ill.; 20 min., silent, color, purchase $150, rent $15.

Demonstrates the normal ear drum and then various inflammatory processes, perforations and other pathological defects.

YOUR EARS: Young America Films, Inc., 18 E. 41st St., New York 17, N. Y.; 1947, 10 min., sound, black and white, purchase $45.

Shortened version of 'Your Children's Ears' showing how certain diseases cause deafness and giving the function of each part of the ear.

Speech Reading

HOW WELL CAN YOU READ LIPS? American Film Registry, 24 E. 8th St., Chicago 5, Ill.; 1946, 30 min., sound, color, purchase $125, rent $4.50.

A standardized lip reading film produced by Dr. Jean Utley and intended as a test of lip reading achievement of children and adults with third grade ability and above.

LIFE SITUATION SPEECH READING FILMS, second series (five reels): University of Southern California, Dept. of Cinema, Los Angeles 7, Calif.; 1956, each 5 min., sound, black and white or color; sale black and white, set $94.50, each $24.50; sale color, set $225, each $50; rent black and white, set $7.50, each $2; rent color, set $15, each $3.50.

1. TOMMY'S TABLE MANNERS: Five-year-old Tommy learns politeness at the dinner table.
2. A LESSON IN MAGIC: Children aged five to 11 put on a show in the garage.
3. THE LITTLE COWBOY: Mother, Tommy and Linda visit a farm.
4. BARBARA'S NEW SHOES: Two girls, mother and a salesman are involved in the purchase of new shoes.
5. BOW BELINDA: A physical education teacher shows four seventh grade boys and girls how to dance.

Series designed for speech reading in real life situations. Subject matter on the child's level.

SPEECH READING: Government Films Department, United World Films, Inc., 1445 Park Ave., 605 W. Washington St., Chicago 6, Ill., or 7356 Melrose Ave., Hollywood 46, Calif.; 1952, 28 min., sound, black and white, purchase $41.32, free loan.

Produced by the U. S. Army. Methods of teaching speech reading.

VISUAL HEARING FILMS (30 reels): Ohio State University, Dept. of Photography, Columbus 16, Ohio; 1950, 8 min. each, silent, color; purchase set (30 films $1,050, each $40; rent set $5.

Produced by Marie K. Mason. Each film an instructional unit with various speakers introducing the script materials. Series arranged according to increasing difficulty.

President's Page:

National Office Revisited

On my first visit to the ASHA National Office in January I gained the impression of an office in the making. Shelves were empty and cartons full; walls were marked to designate where equipment was to be installed; there seemed to be considerably more space than we were likely to need for a while. My later visits to our office have left a different impression. The shelves are full, not only with official stationery, but with autographed copies of books of ASHA members. (We have room for more of these books, and will build all the shelves necessary to provide adequate space for them.) Equipment is installed, and a feeling of being cozy if not crowded replaces the earlier one of 'What will we do with all that room?' We are definitely in business.

I gained other impressions from the recent visit to our National Office. Washington is an expensive city and service costs come high. There is a striking difference in cost between running a national office with a university as host and non-rent charging landlord and running an office with leases from a landlord who believes in charging rent, with payment for utilities and for competent administrative and secretarial help. But the difference in cost, however great, is completely in order. A mature professional organization needs its own quarters and cannot indefinitely expect universities to play the role of indulgent hosts. Increased costs need inevitably to be translated into increased membership fees or into an assessment until an appropriate membership fee can be determined. The difference to the members must also be felt in terms of increased and improved services. This is a vital part of our plans for the future. In the meantime, we urge all who are associated with ASHA to pay a visit to *your* National Office. After you do, share your impressions with your *Journal* editors and with other members.

Our Association was fortunate in receiving two government grants to permit us to engage in 'research on the needs for research.' Dr. M. D. Steer accepted the appointment as chairman of this committee. We shall hear from Dr. Steer at our next convention in November. See you then—in great numbers,

Cordially,
JON EISENSON

The Ohio Hearing Cruiser

William A. Grimm
John J. O'Neill

Within recent years increased attention has been directed toward the development of mobile or field units for use in audiological testing and surveys. Several states, California, Indiana, Michigan, North Dakota and Ohio, have utilized conventional or specially-constructed trailers to house audiological testing facilities. One of the first published accounts of the use of such a trailer appeared in 1949 (*5*). Two years later a more detailed description of a mobile unit appeared (*4*). In 1953 Lynndelle (*3*) provided a brief description of a mobile unit which utilized a converted school bus for the testing of school children in rural areas. Cameron (*1*) has also informally listed data concerning the construction of the California mobile hearing units. In 1957 Cox, Benson and Niemoeller (*2*) described the construction and operation of a trailer to be used in the testing of the hearing of naval personnel.

The Ohio Department of Health, early in 1950, purchased a specially-constructed trailer to be used throughout the state. It soon discovered, however, that because of road and weather conditions in the state as well as the construction of the unit (improper balance and weight distribution) the original plans for use of the unit would have to be radically changed. The unit could not be easily transported from one area of the state to another even under ideal circumstances. With the onset of poor weather conditions, transportation of the trailer became hazardous. Moreover, whenever the unit was used, more personnel time was required than the program warranted. A new unit was needed which could be used in a variety of testing situations, under all weather conditions and with expenditure of a minimum of personnel time. As a result, the Department of Health decided, when it came time to change, to utilize a custom-built bus in the hope of attaining greater mobility and efficiency.

Description

The Hearing Cruiser is a specially-built, modified interurban bus (Figure 1). As completed, the Cruiser weighs seven and one-quarter tons, measures 27 feet in length, eight feet in width and 10 feet in height. It is equipped with air brakes, power steering and automatic transmission. These latter pieces of equipment insure that the Cruiser can be easily operated by the professional staff of the Hearing Conservation Unit.

William A. Grimm (M.A., Ohio State University, 1954) is Chief of the Hearing and Vision Conservation Unit of the Ohio Department of Health; John J. O'Neill (Ph.D., Ohio State University, 1951) is Associate Professor of Speech, Ohio State University.

FIGURE 1. Outside view of the Ohio Hearing Cruiser.

Design Considerations

In designing the basic floor plan of the Cruiser it was necessary to keep in mind the type of audiometric testing desired. Several group and individual audiometric testing situations were anticipated. It was therefore necessary to have two separate rooms, *i.e.*, a testing room and a control room. It was felt that provisions should be made for 'free field' testing, group testing and individual diagnostic testing. In allocating space it was necessary that two factors be considered. These factors were the amount of space required for sound treatment of the cruiser and the minimal space that would be required for the outlined testing activities. The completed floor plan included a control room (seven feet by seven and one-half feet), a testing room (11 feet by seven and one-half feet) and a driver's compartment.

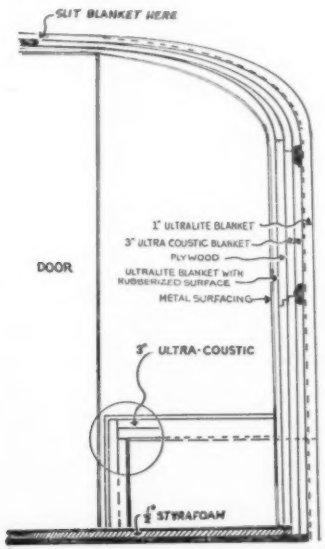

FIGURE 2. Schematic of acoustical treatment of side walls of the Ohio Hearing Cruiser.

Acoustical Treatment

In considering the acoustical treatment of the Cruiser, two problems had to be solved. The most important was the need to provide attenuation or absorption of sounds from outside the unit. A second problem was the transmission of sounds (vibrational) through the metal shell of the unit.

Construction began with only the studs of the coach frame. The outside metal shell was attached to the studding. A one-inch ultralite blanket and a three-inch ultra acoustic blanket were placed against the metal shell on the sides and top of the unit. Next to this blanket was placed a one-half-inch layer of plywood. This plywood, which formed the inner wall of the interior, was covered with an ultralite blanket with rubberized surface. Next to this and forming the inner surface of the Cruiser wall was a perforated metal acoustical covering. The arrangement of materials is graphically portrayed in Figure 2. Also, as can be noted, the floor area consisted of a one-half-inch plywood deck covered with one-half inch of styrafoam. On top of this base was placed a

TABLE 1. Octave band analysis of noise outside and inside of the Ohio Hearing Cruiser.

	Band Width in cps							
	20/75	*75/100*	*150/300*	*300/600*	*600/1200*	*1200/2400*	*2400/4800*	*4800/9600*
Outside Level	72db	69db	71db	72db	73db	74db	72db	66db
Inside Level*	49	41	45	39	33	32	23	19
Attenuation	23	28	26	33	40	42	49	47

*Air conditioning off.

three-quarter-inch layer of plywood and a one-eighth-inch rubber flooring. One other point of interest is the general construction of the two testing rooms. These rooms were so constructed that they were essentially floating rooms: there was no metal-to-metal contact. This was accomplished by the use of shock mounts which connected the interior wall to the outer shell. The interior walls were joined to the exterior shell by rows of shock mounts and by a strip of 16-gauge-steel angle one inch by one inch. The bulkheads between the compartments were constructed with comparable acoustical treatment and vibrational isolation from the side walls. There was a viewing port, consisting of three panes of glass mounted in rubber gaskets. The center pane was mounted at a slight angle with a dead air space of three and one-half inches between the outer panes of glass in the bulkheads separating the control room and the large testing room.

The doors between the testing compartments and the driver's compartment were especially constructed doors with rubber gaskets. The doors consisted of a one-half-inch layer of plywood, one-half-inch layer of styrafoam, a three-inch layer of fiberglass, a one-half-inch layer of styrafoam, and one-half-inch layer of plywood. The exterior surfaces of the door consisted of a perforated metal acoustical covering. A hydraulic door stopper insured tight closure.

Measurements of the degree of noise reduction achieved by the construction were made in the manufacturer's assembly shop during normal working hours. The measurements were made with a General Radio Sound Level Meter (Model 1551-A) set on C-scale and a General Radio Octave Band Analyzer (Model 1550-A). The results of the analysis are listed in Table 1.

The measurements would indicate that the Cruiser could be utilized in the testing areas for which it was designed, *i.e.*, school grounds, county fairs, civic areas and industrial plants.

Equipment and Testing Arrangements

The basic testing unit is an Allison Model 21-B audiometer with eight sets of matched Telephonics earphones (Model H-3/ARR-3). Also included is a portable eight-inch speaker mounted in a bass reflex cabinet. The large test room contains wiring ducts which allow for testing stations for eight binaural head sets. Testing stations consist of 12-inch-by-18-inch formica-covered writing surfaces which are hinged, enabling them to be drawn up against the sides of the

Cruiser when not in use. Especially constructed folding chairs are also provided. These chairs, when not in use, can be stored in the underdeck of the Cruiser. Thus, speech and pure-tone tests can be administered to a group of eight subjects simultaneously. The Allison unit which is located in the control room permits the operator to control independently the sound reaching the left or right ears of the subjects.

It is also possible to utilize four individual pure-tone audiometers to present simultaneous individual screening or threshold tests. Three of the testing stations can be set up in the testing room while the fourth station is in the control room. There is space for a tester and a subject at each of the stations. Power for the three audiometers in the testing room is obtained from the electrical outlets which are contained in an Electra Strip installation located on both wall surfaces some 18 inches above the regular group phone outlets.

For free field testing by either live voice or phonograph, the loudspeaker is mounted in the farthest corner of the large testing room. Provisions are also made for the use of a talk-back microphone and a signaling button.

Individual clinical and diagnostic pure-tone and speech reception tests can be administered in the control room which contains sufficient space for the tester and a subject, or the subject may be seated in the test room. Air and bone receivers can be plugged into installed jacks. A talk-back system is also provided.

The two testing compartments are air-conditioned and electrically heated. The smaller testing room has a three-quarter-ton air conditioner with a 90-degree acoustically-lined duct for discharged air while a one-ton unit is used in the main room. This unit is fitted with an acoustically-treated duct containing two 90-degree turns discharging air into the upper part of the main compartment.

Two-hundred-twenty-volt electric power is supplied from outside power sources through a 100-foot cable. Also included is an auxiliary, battery-operated 'panic light' system which switches on immediately and automatically in the event of a power failure.

Summary

A description of the construction and operation of a mobile audiological testing unit is presented. The purpose of such a unit is to provide:

1. Diagnostic audiological facilities not otherwise available.
2. Testing facilities for local hearing surveys.
3. Testing facilities for schools and industries where noise is a problem.
4. Facilities for health education programs in which testing techniques are demonstrated and hearing conservation is stressed.
5. Facilities for audiological research in cooperation with colleges and universities.

References

1. Cameron, R. M., Personal communication, January 15, 1957.
2. Cox, J., Benson, R., and Niemoeller, A., A mobile laboratory for group hearing tests. *Noise Control*, 3 (2), 1957, 44-48, 92.
3. Lynndelle, V., Education of the aurally handicapped. *Bull. Calif. St. Dept. Educ.*, 22 (2), 1953.
4. Osborn, C. D., Michigan's mobile hearing units. *J. Speech Hearing Dis.*, 16, 1951, 140-147.
5. Smaltz, J. M., Mobile speech and hearing clinic in North Dakota. *Hearing News*, 17 (8), 1949, 3, 10-13.

Abstracts

Phillip A. Yantis, *Editor*

Anatomy and Physiology

BÉKÉSY, G. v., Funneling in the nervous system and its role in loudness and sensation intensity on the skin. *J. acoust. Soc. Amer.*, 30, 1958, 399-412.

Along the stimulated skin surface there is a complex interaction of summation and inhibition which the author describes as 'funneling action.' A series of experiments to establish rules for the estimation of this funneling action demonstrates a similarity between this phenomenon on the skin and refractory periods of nerves. (*B. A. Landes, Texas Technological College*)

ENGSTRÖM, H., On the double innervation of the sensory epithelia of the inner ear. *Acta otolaryng., Stockh.*, 49, 1958, 109-118.

Evidence is presented to support the contention that the cochlea contains both afferent and efferent innervation. The distinct nature and functional properties of each nerve type are discussed, and pertinent studies in this field are reviewed. (*D. A. LaRusso, University of Washington*)

GOODHILL, V., and HOLCOMB, A. L., The relation of auditory response to the viscosity of tympanic fluids. *Acta otolaryng., Stockh.*, 49, 1958, 38-46.

The authors report an experimental study designed to determine the correlation of auditory response and tympanic fluid viscosity. Procedures include (1) placing electrodes in the exposed middle ear of an anesthetized cat to measure cochlear microphonic voltages, (2) implanting a tube into the auditory meatus to aid in measuring air conduction efficiency, (3) using a constant tone level varied in octave intervals between 90 and 8000 cps and (4) measuring the cochlear microphonics before and after induced changes in tympanic fluid viscosity. Results show that there is a significant decrease in *both* air- and bone-conduction potentials (increased thresholds) with an increase in fluid viscosity. (*D. A. LaRusso, University of Washington*)

JONGKEES, L. B. W., and v. D. VEER, R. A., On directional sound localization of unilateral deafness and its explanation. *Acta otolaryng., Stockh.*, 49, 1958, 119-131.

Heretofore explanations of directional hearing have always been based upon differences in time, phase and intensity of sound waves received by each ear. Feeling that these explanations were not accurate, the authors sought to test the influence of the vestibular apparatus, the auricle and various head movements upon directional hearing. Nine patients with total bilateral loss of vestibular function (but with normal cochlear function), 20 normal subjects and a specially constructed artificial head (with plastic auricle) were utilized to test the above three factors.

Results indicate that (1) the vestibular apparatus is not directly responsible for directional hearing, (2) directional hearing may be aided by small, controlled movements of the head and (3) the auricle manifests its greatest influence upon directional hearing within the frequencies between 5,000 and 10,000 cps. (*D. A. LaRusso, University of Washington*)

JUNGERT, S., Auditory pathways in the brain stems. *Acta otolaryng., Stockh.*, Suppl. 138, 1958, 5-67.

This article reports the attempt of the author to map out auditory pathways within the brain stem and to present something of a detailed analysis of responses to click stimulation. The author describes the auditory pathways discovered in decerebrated cats; the responses to stimuli were 'a mix-

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ture of sound frequencies designed to excite the greatest portion of cochlear receptors.' (*D. A. LaRusso, University of Washington*)

KOENIG, E., The effects of auditory pathway interruption on the incidence of sound induced seizures in rats. *J. comp. Neurol.*, 108, 1958, 383-392.

The experimenter used 18 rats, all of which met a criterion of susceptibility to sound-induced seizures. They were divided into two groups of nine. One group served as experimental subjects; the other group the control. The experimental group was subjected to bilateral electrolytic lesions of the medial geniculate nucleus in an attempt to interrupt the auditory pathway. The control group underwent a sham operation with the auditory pathway being left intact. Post-operative testing showed that the experimental animals still exhibited susceptibility to sound-induced seizures. The seizures were not as severe, however. The investigator interpreted his results as indicating that the specific auditory contribution to the precipitation of a seizure at the level of the medial geniculate nucleus and cortex is negligible. (*H. J. Oyer, Ohio State University.*)

MISRAHY, G. A., HILDRETH, K. M., SHINABARGER, E. W., CLARK, L. C., and RICE, E. A., Endolymphatic oxygen tension in the cochlea of the guinea pig. *J. acoust. Soc. Amer.*, 30, 1958, 247-250.

In order to determine the normal oxygen content of the scala media and the effect of inhalation of various gases on it, oxygen tension was determined polarographically with microelectrodes before and after inhalation of nitrogen, carbon dioxide and pure oxygen. Results show that CO_2 and O_2 cause oxygen tension to increase whereas N_2 causes a decrease. The manner of recovery after atmospheric air is substituted for the gas is discussed along with implications in terms of cochlear damage. The O_2 gradient in the scala media normally indicates that the supply of O_2 comes from the stria vascularis. (*B. A. Landes, Texas Technological College*)

WEVER, E. G., VERNON, J. A., and LAWRENCE, M., The nature of the cochlear potentials in the monkey. *Acta otolaryng., Stockh.*, 49, 1958, 87-92.

Research on the nature of cochlear potentials in the monkey reveals that they are quite similar to those of other mammals. Recordings of responses to tones varying from 100 to 15,000 cps were made in six rhesus monkeys and one green monkey. (*D. A. LaRusso, University of Washington*)

ZWISLOCKI, J., Effect of the transmission characteristic of the ear on the threshold of audibility. *J. acoust. Soc. Amer.*, 30, 1958, 430-432.

'The threshold of audibility as a function of frequency is determined by the transmission characteristic of the ear and by the sensitivity of the nervous system. In order to separate the two factors, the sound transmission characteristic is calculated on the basis of known experimental data and compared to the threshold of audibility. As a final result a simple curve is obtained which describes the sensitivity of the nervous system as a function of frequency.' (*Author's precis*)

General

ADLER, S., Public opinion regarding the causes of stuttering. *South. Speech J.*, 23, 1958, 189-192.

Three hundred thirty-five people were contacted by stutterers in a telephone survey to determine their opinions as to the cause of stuttering. Slightly more than half of the sample selected asserted that they did not know the cause. The most common cause cited was 'nervousness' with the second most common cause as 'frustration.' Other causes mentioned only occasionally were talking faster than thinking, being redheaded and being tickled as babies. The need for the dissemination of information regarding stuttering appeared evident. (*B. A. Landes, Texas Technological College*)

BENTON, A. L., Significance of systematic reversal in right-left discrimination. *Acta psychiat., Kbh.*, 33, 1958, 129-137.

A comparative study of children manifesting systematic reversal in right-left discrimination and a control group of children

with adequate right-left discrimination and not showing this reversal tendency was made. Both groups ranged in age from six to eight and were of normal intelligence. It was found that (1) as compared with the control group, the children showing systematic reversal were not inferior in respect to finger localization capacity or the development of arithmetic skills nor did the group include an unduly high proportion of cases exhibiting lefthandedness or confusion in handedness and (2) as compared with the control group, the children showing systematic reversal were generally inferior in the development of language skills and this group included an unduly high proportion of cases of defective reading ability.

The author concludes that systematic reversal in right-left discrimination may be symptomatic of a general language deficit. The reversal tendency does not appear to be related to a basic disturbance of the body schema. (*B. S. Street, Minneapolis*)

BOEHMLER, R. M., Listener responses to non-fluencies. *J. Speech Hearing Res.*, 1, 1958, 132-141.

Trained and untrained listeners classified recorded samples of speech from both stutterers and non-stutterers as to whether they contained stuttering non-fluencies or non-stuttering non-fluencies. The samples had previously been rated by another group as to severity. Results indicate that the frequency with which the stuttering label was applied varied with the judged severity. Trained judges applied the stuttering label more frequently than did the non-trained judges. (*B. A. Landes, Texas Technological College*)

HOHMAN, L. B., and FREEDHEIM, D. K., Further studies on intelligence levels in cerebral palsied children. *Amer. J. phys. Med.*, 37, 1958, 90-97.

This is a report of the results of intelligence tests administered to 1003 children who were seven months to 16 years of age and who had been diagnosed as cerebral palsied. Sixty per cent of this group had IQ's below 70. The authors suggest the number of children educable for economic independence is probably less than 40 per cent with IQ's above 70 since some of these are too physically involved to acquire a usable education. (*J. L. Shapley, University of Iowa*)

HOLMES, J. A., and HYMAN, W., Spelling disability and asyntaxia in a case involving injury to the language formulation area of the brain. *J. educ. Psychol.*, 48, 1957, 542-550.

The authors present a case that manifests difficulty in language formulation along with inability to spell from dictation, but with good ability to recognize correctly-spelled words. A program of intensive differential testing is related along with the psychoeducational implications of *dictation type* of spelling ability in contrast to *proofreader's type* of spelling ability. (*M. Rees, Sacramento State College*)

LARYNGOSCOPE, 68, 1958, 209-682.

This is a special issue of *Laryngoscope* which reports the proceedings of the International Conference on Audiology held in St. Louis, Missouri, May 13 through 16, 1957. Copies may be ordered from Dr. S. Richard Silverman, 818 South Kingshighway, St. Louis 10, Mo. The cost per copy is $8.50. (*A. C. Goodman, Washington University*)

MCALLISTER, A. H., The problem of stammering. *Speech Pathol. Ther., London*, 1, 1958, 3-8.

The author reviews a study of 139 cases of stuttering which was originally published in 1937. The group was composed of 124 males and 15 females. She found the range of I.Q.'s to be 78 to 120 plus and felt that environment could not be judged as a precipitating factor. The cases were divided into four groups according to possible causes: (1) 13.6% had some abnormality in the structure or functioning of the speech organs; (2) 6.5% were left-handed; (3) 5.7% seemed to stutter originally by imitation; and (4) 75% showed emotional complexes of many types. The author concludes that an emotional disorder is the precipitating cause of stuttering and feels that speech re-education must be carried out through psychotherapy, stabilization of the patient's attitude towards speech, relaxa-

tion therapy and, finally, speech therapy. (*P. A. Y.*)

PATERSON, A. S., The stammering child. *Practitioner*, 180, 1958, 428-433.

This is a very condensed and partial summary of currently held views regarding the etiology and treatment of 'stammering.' The author suggests an approach in the examination of a child which includes consideration of possible hereditary, dietary, neurological and psychological causative factors of his speech problem. The roles of the psychiatrist and speech therapist are considered complementary in the treatment of the disorder. Although the author does not champion any specific approach to therapy, he discusses under a separate section a 'Relaxation Treatment' used at the West London (England) Hospital. (*J. L. Shapley, University of Iowa*)

SETH, G., Psychomotor control in stammering and normal subjects: an experimental study. *Brit. J. Psychol.*, 49, 1958, 139-143.

Two groups of subjects, 'ostensibly' right-handed stutterers and right-handed normal controls, were compared in terms of their motor control. Kymographic records of finger-tapping indicated that stutterers were inferior to normals in maintaining a regular rhythm. The results are in line with the Orton-Travis theory and suggest that stuttering is not merely a speech disorder; rather, the disorganization of psychomotor function involves situations in which communication by speech is not involved and in which personal-social factors are negligible. (*R. W. Albright, Arizona State College*)

ROACH, R. E., The meaning of severe deafness in the life of the young child. *Cerebral Palsy Rev.*, 19, 1958, 15-18.

This article is a discussion of the factors contributing to the social, emotional and educational development of the young deaf child. Suggestions are included for exposure to language in specific family situations with emphasis on visual exposure to words and sentences and the use of any residual hearing the child may have. The observation is made that the preschool deaf child who has been talked to in meaningful situations is more likely to derive immediate benefit from nursery school and that he will progress faster in personality and language development. (*J. L. Shapley, University of Iowa*)

Pathology

HALOWACH, J., THURSTON, D. L., and O'LEARY, J., Jacksonian seizures in infancy and childhood. *J. Pediatrics*, 52, 1958, 670-686.

The authors reviewed 114 cases of Jacksonian epilepsy in infants and children. Results including incidents, heredity, age of onset and etiology were discussed. In addition, seizures were analyzed and related to mental retardation and hemiplegia. EEG and air-encephalogram findings were also analyzed. (*B. B. Schlanger, West Virginia University*)

KARLIN, I. W., Speech- and language-handicapped children. *Amer. J. Dis. Child.*, 95, 1958, 370-376.

'Discusses briefly the relation between brain development and the development of language; factors that normally influence the development of speech in the child; and various types of speech and language disorders. Problems of differential diagnosis in children who do not talk at all, or have very limited or distorted speech, are considered as well as the problem of stuttering and its causes.' (Courtesy *Rehab. Lit.*)

MCCABE, B. F., and LAWRENCE, M., The effects of intense sound on the non-auditory labyrinth. *Acta otolaryng., Stockh.*, 49, 1958, 147-157.

In order to discover more information concerning the action of prolonged loud sound upon vestibular functions, the authors designed an experiment using a total of 37 guinea pigs systematically exposed to noise of 136 or 150 db. Careful histological analysis, following rigidly controlled stimulation, allows the investigators to report that the saccule assumes all of the damage resulting from high-level sounds. (*D. A. LaRusso, University of Washington*)

RANTA, L. J., Acoustic and vestibular dis-

turbances following streptomycin-treated tuberculous meningitis in children. *Acta otolaryngol., Stockh.*, Suppl. 136, 1958, 9-78.

Following an extensive survey of the literature, author Ranta sets out to discover relationships existing between treatment for tuberculous meningitis and pathologies of the acoustic and vestibular organs. The author examined 101 cases of children with tubercular meningitis and 124 cases with non-meningeal tuberculosis. The subjects were tested with whisper, speech and tuning fork tests and pure-tone audiometry.

Results showed that 62% of the children with tubercular meningitis and 18% of the children with non-meningeal tuberculosis suffered hearing losses. Of the cases with tubercular meningitis, 15% suffered a severe hearing loss ('speech at less than 2m'), and 7% were totally deaf. All of the cases of tubercular meningitis suffering hearing losses had perceptive-type difficulties. (*D. A. LaRusso, University of Washington*)

Sataloff, J., and Menduke, H., Adenoids and hearing loss in children. *Amer. J. Dis. Child.*, 95, 1958, 529-533.

One hundred children, three to 14 years of age, were studied. In all cases, hypertrophied adenoid tissue was present, a stabilized conductive deafness was evident and conservative therapy (antibiotics, *etc.*) had failed to resolve the patients' symptoms. Audiograms were taken before and after adenoidectomy. Post-operative audiograms indicated 63 children regained hearing within normal limits, 33 were improved, three showed no change and one had worse hearing. (*J. L. Shapley, University of Iowa*)

Scal, J. C., Hearing impairment in noisy environment. *Eye, Ear, Nose, Thr. Mon.*, 37, 1958, 335, 342.

The author discusses hearing impairment as a result of high level noise. He recommends that an audiogram be made periodically of those working in noisy environments. (*H. J. Oyer, Ohio State University*)

Scheinberg, P. A., A critical review of circulatory physiology as it applies to cerebral vascular diseases. *Ann. intern. Med.*, 48, 1958, 1001-1016.

A summary is presented of the circulatory physiologic studies which have been done on patients of many types with the idea of relating these physiologic data to the clinical and pathologic problems of cerebral infarction due to thrombosis or embolism, hypertensive cerebral hemorrhage and hypertensive encephalopathy. There is a discussion of various factors known to influence cerebral blood flow, cerebral metabolism and cerebral vascular resistance. These factors are related to some of the problems of cerebral vascular diseases. (*B. B. Schlanger, West Virginia University*)

Sercer, A., and Krmpotic, J., Aspects macroscopique des pièces anatomopathologiques d'otospongiose. (Macroscopic aspects of some anatomically pathological pieces of otosclerotic bone.) *Rev. Laryng., Bord.*, 79, 1958, 15-62.

Evidence of otosclerosis was found in about 1.3% of 1500 temporal bones (750 skulls) examined. It was bilateral in all but one skull. In 13 cases the otosclerotic focus was around the oval window and in six cases around the round window. In some of these specimens there was partial or complete fixation of the ossicles. The specimens are illustrated from different aspects and with various magnifications. (*R. Goldstein, Jewish Hospital of St. Louis*)

Thiébaut, F., Greiner, G.-F., Mengus, M., and Lafon, J.-C., Surdités centrales avec recruitment dans les syndromes de Parinaud, de Foville et de Wallenberg. (Central deafness with recruitment in the syndromes of Parinaud, of Foville and of Wallenberg.) *Rev. Laryng., Bord.*, 78, 1957, 952-961.

Lesions of the brain stem are responsible for each of these three syndromes, all of which include some involvement of the ocular muscles. Auditory complaints are also characteristic of the syndrome of Parinaud and of Foville, but not of Wallenberg except in atypical cases. Audiograms for six patients with these syndromes show sensorineural losses, greater in one ear than the other, and greater for high than for low frequencies. In all six cases binaural loudness-balance tests show complete or nearly complete recruitment. The authors infer (in the absence of histologic evidence) that the

sensory cells of the cochlea are intact in these patients but that the central lesions bring about circulatory or secretory changes within the cochlea. These changes create the conditions necessary for recruitment. (*R. Goldstein, Jewish Hospital of St. Louis*)

Psycho-Acoustics

CRAMER, E. M., and HUGGINS, W. H., Creation of pitch through binaural interaction. *J. acoust. Soc. Amer.*, 30, 1958, 413-417.

In 1953, Huggins observed that binaural presentation of a stimulus gave a perception of pitch whereas monaural presentation of the same stimulus gave no such perception. This phenomenon is investigated in the present paper. Data are presented to show the relationship between correct judgments of direction of pitch change and frequency, band width and intensity level. (*B. A. Landes, Texas Technological College*)

FLANAGAN, J. L., and SASLOW, M. G., Pitch discrimination for synthetic vowels. *J. acoust. Soc. Amer.*, 30, 1958, 435-442.

The just-discriminable changes in fundamental frequency of synthetic vowels were investigated psychoacoustically. Several combinations of four vowels, three SPL's, and two fundamental frequencies were used. Results indicate the just-discriminable change to be of the order of 0.3 to 0.5 cps. (*B. A. Landes, Texas Technological College*)

LAWRENCE, M., Physiological and psychological acoustics. *J. acoust. Soc. Amer.*, 30, 1958, 394-396.

Three broad areas of unsolved problems in hearing are briefly presented: means for measuring and describing the phenomena of hearing, a physical description of the bases for these phenomena and accounting other than statistically for the wide individual differences noted in hearing. (*B. A. Landes, Texas Technological College*)

MILLER, J. D., Temporary threshold shift and masking for noise of uniform spectrum level. *J. acoust. Soc. Amer.*, 30, 1958, 517-522.

'This experiment was designed to test the hypothesis that differences in the effective noise level from one critical band to the next can account for the typical audiogram showing the temporary threshold shift which results from an exposure to noise of uniform spectrum level. For equal masking . . . the greatest losses were found at the highest frequencies and the smallest losses at the lowest frequencies. However, the hypothesis implied that for equal masking all frequencies would show equal losses . . .' (*B. A. Landes, Texas Technological College*)

MILLS, A. W., On the minimum audible angle. *J. acoust. Soc. Amer.*, 30, 1958, 237-246.

With the subject seated in an anechoic chamber, tone pulses were presented from various angles of a horizontal plane around the head. For each of three subjects the minimum audible angle, or smallest detectable angular separation in sound source, was determined for frequencies between 250 and 10,000 cps. Results indicate that below 1400 cps interaural phase or time differences determine threshold angles, and above 1400 cps differences in interaural intensity are most significant. (*B. A. Landes, Texas Technological College*)

POLLACK, I., and PICKETT, J. M., Interaural effects upon speech intelligibility at high noise levels. *J. acoust. Soc. Amer.*, 30, 1958, 293-296.

'The role of interaural effects upon speech intelligibility was examined at high noise levels. Over a wide range of conditions a "mixed" listening condition (speech and noise to one ear and noise alone to the other ear) produced substantially lower intelligibility scores than monaural or binaural presentation of both speech and noise. The results are interpreted in terms of the interaction between the intelligibility of speech cross-conducted to the other ear and the apparent localization in space of the speech and noise.' (*Authors' precis*)

SPIETH, W., and TRITTIPOE, W. J., Temporary threshold elevation produced by continuous and 'impulsive' noises. *J. acoust. Soc. Amer.*, 30, 1958, 523-527.

Temporary threshold elevation resulting from repeated, short, intense bursts of noise

was compared with that resulting from exposure to a continuous noise. Results indicate that 1-msec bursts have less effect than the equivalent continuous energy. Exposure to longer bursts appears to cause no more threshold elevation than would the equivalent amount of continuous noise. (*B. A. Landes, Texas Technological College*)

TRITTIPOE, W. J., Temporary threshold shift as a function of noise exposure level. *J. acoust. Soc. Amer.*, 30, 1958, 250-253.

In order to determine whether TTS following exposure to higher sound levels is an increasing function of the level of exposure, six listeners were exposed monaurally to tones at 108, 118, and 128 db for one minute. Nine other listeners were exposed to wide-band thermal noise for three minutes at each of five SPL's. TTS's were determined by an automatic audiometer. Results indicate no general tendency for TTS to level off or to decrease after high-level exposure. A very small minority of individuals show decreasing TTS with increasing intensity. (*B. A. Landes, Texas Technological College*)

ZWISLOCKI, J., MAIRE, F., FELDMAN, A. S., and RUBIN, H., On the effect of practice and motivation on the threshold of audibility. *J. acoust. Soc. Amer.*, 30, 1958, 254-262.

'The thresholds of audibility for 100 and for 1000 cps have been measured on five groups of originally naive listeners by various experimental techniques. All the experiments showed improvement of the threshold with practice. The improvement was greater at 100 cps than at 1000 cps. Pretraining at 1000 cps did not affect the threshold change at 100 cps. The improvement of the threshold with practice was enhanced considerably by reward and feedback.' (*Authors' precis*)

Rehabilitation

BUTFIELD, E., Rehabilitation of the dysphasic patient. *Speech Pathol. Ther., London*, 1, 1958, 9-17.

The general management of the dysphasic individual, especially immediately after hospitalization, is discussed and illustrated by three cases. The writer emphasizes that at least four reactions to brain damage may be anticipated in these patients: (1) they are almost always anxious; (2) previous personality traits are exaggerated; (3) there are surprising fluctuations of performance; and (4) recovery from, or adaptation to, brain damage is a slow process.

After discussing the general rehabilitation of the dysphasic, the author gives her classification of the various symptoms and then outlines the general principles and systemic exercises for treatment of the language disorder. (*P. A. Y.*)

CARTER, C. H., The effect of meprobomate (equanil) on brain-damaged patients. *Amer. J. med. Sci.*, 235, 1958, 632-638.

Meprobomate was administered to 47 patients with behavioral problems, 35 patients with athetoid cerebral palsy, 15 patients with spastic cerebral palsy and 8 other brain-damaged patients, all of whom were institutionalized. The drug was found to (1) heighten the patients' amenability to training, (2) make possible more efficient use of physical therapy facilities and programs and (3) produce an improved patient attitude. Eighty per cent of the spastic and 97 per cent of the athetoid patients responded with at least moderate remission of neuromuscular symptoms. Behavioral problems almost disappeared in 57 per cent of the cases and they were moderately relieved in 97 per cent of the cases. (*J. L. Shapley, University of Iowa*)

CHARASH, L. I., and COOPER, W., Experiences with meprobomate in cerebral palsy. *Pediatrics*, 21, 1958, 605-608.

As meprobomate seemed to have unusual pharmacological properties, including a selective action on the thalamus as well as muscle relaxant properties, a clinical trial of this drug was carried out with 40 cerebral palsied subjects. Results indicated that in no case was there any permanent objective evidence of improvement. The authors imply that this drug, as in the case of many other chemical agents, does not have a specificity for cerebral palsy. (*B. B. Schlanger, West Virginia University*)

FEALLOCK, B., Communication for the non-

verbal individual. *Amer. J. occup. Ther.*, 12, 1958, 60-63, 83.

'The occupational therapy department of the Illinois Children's Hospital-School has, for a number of years, worked closely with the speech, education and psychology services in an effort to deal with communication problems of severely handicapped cerebral palsied children who cannot write or use the sign language. Methods of determining to what extent an individual may be able to make use of a communication aid are discussed, as well as various types of aids and their usefulness. Factors that need to be considered in anticipating the use of such devices are evaluated. Experience with 32 children between the ages of four and 18 was reviewed; all had normal hearing except two who were deaf. The majority were confined to wheelchairs and all had some difficulty with coordination of the upper extremities. Intelligence ranged from retarded to bright average, but most were so severely involved they had not been able to profit from speech therapy.' (Courtesy *Rehab. Lit.*)

FLEMING, M., Speech therapy. *Med. World*, 88, 1958, 157-158, 161-162.

'An article for the general practitioner defining speech therapy as compared with speech training and discussing various disabilities of speech, language and voice with which the speech therapist must deal. Causes and prognosis are mentioned briefly, and sources of available aid in Great Britain are suggested.' (Courtesy *Rehab. Lit.*)

GIBBONS, P., and BLOOMER, H., A supportive prosthetic speech aid. *J. prosth. Dent.*, 8, 1958, 362-369.

The construction and evaluation of a specially designed prosthetic speech aid for a patient with extensive pharyngeal and total palatal paralysis is presented. The design of the prosthesis employs the principle of palatal elevation as a means of decreasing the lumen of the palatopharygeal valve in speech. Spectrographic comparisons, with and without speech aid, are used to illustrate the effectiveness of the appliance. (*A. K. Kaires, U. S. Navy*)

IVERSON, N. E., Speech correction for the busy physician. *Arizona Med.*, 14, 1957, 732-740.

'Medical training and internship experience do not provide the physician with the special training to examine, diagnose or treat speech disorders. This article discusses the general educational, emotional, social and managerial problems presented by the speech-handicapped individual in order to give the physician the minimal facts and procedures for rehabilitating these patients. In addition to providing routine medical care, the physician should be acquainted with the principal types of speech disorders and recommended practices consistent with each type of defect, in order to be able to refer the patient to sources of qualified treatment. After brief descriptions of speech and voice disorders and their prognosis under treatment, the author mentions the special training, qualifications and responsibilities of the speech pathologist and educational principles underlying the practical application of speech correction. (Courtesy *Rehab. Lit.*)

KATZ, L., Learning in aphasic patients. *J. cons. Psychol.*, 22, 1958, 143-146.

Two equivalent series of postage stamps were exposed to 25 predominantly expressive male aphasic patients between the ages of 19 and 51, once with instructions to remember the stamps and once with instructions to evaluate the stamps aesthetically. Retention of the material was tested and the scores obtained by the aphasics were compared with those obtained by a control group of 25 male nonaphasics. The results of the experiment show that goal-directed instructions, as compared with incidental instructions, produced higher recall scores in the nonaphasics but not in the aphasics. (*B. S. Street, Minneapolis*)

LEFEVRE, M. C., Speech therapy for the geriatric patient. *Geriatrics*, 12, 1957. Reprint. Pp. 10.

'An article written at the suggestion of the late George J. Fortune, formerly Director of the Cleveland Hearing and Speech Center, and reflecting his interest in providing rehabilitation services for geriatric patients. Since the older patient may become increasingly dependent on his ability to

communicate, impairment of this ability may easily be one of his more serious problems. Discussed are: determining factors in prognosis, types of speech problems experienced by geriatric patients, therapy procedures and goals and the importance of teamwork in therapy procedures.' (Courtesy *Rehab. Lit.*)

Low, N. L., and Myers, G. G., Suvren in brain-injured children. *J. Pediatrics*, 52, 1958, 259-263.

Forty patients with patterns of organic brain damage were given Suvren in an attempt to make them more manageable. Twenty-three patients showed improved behavior with an amelioration of symptoms, no significant toxic reactions nor untoward side effects. While the reasons for the effectiveness in some cases is not clear, the authors feel that the drug is safe and useful in the treatment of hyperactive children with brain damage. (*B. B. Schlanger, West Virginia University*)

Markle, D. M., and Aber, W., A clinical evaluation of monaural and binaural hearing aids. *Arch. Otolaryng., Chicago*, 67, 1958, 606-608.

'Discrimination scores with binaural hearing aids were not significantly different from those obtained with monaural hearing aids when the test words were presented at a level of 10 db above the intensity of the noise. Significantly better discrimination scores were obtained with binaural hearing aids when the test words were presented at the same intensity as the noise and at a level of 10 db below the intensity of the noise. Conventional clinical instrumentation does not permit demonstration of the superiority of binaural over monaural hearing aids. Signal and noise must be presented to the subject from different directions.' (*Authors' precis*)

Wepman, J. M., Aphasia and the 'whole person' concept. *Amer. Arch. rehab. Ther.*, 6, 1958, 1-9.

'A clarification of two terms commonly misused in professional vocabularies—the concept of the "whole person," and the meaning of the term "aphasia." Dr. Wepman believes that, too often, members of the rehabilitation team tend to view the patient from the standpoint of their particular medical or professional specialty. He urges relating to the person rather than to the defect and advises on ways the therapists can motivate the patient to become independent. Therapeutic speech methods for retraining the aphasic patient differ according to the differential diagnosis of aphasia, agnosia or apraxia. He points out in detail how patients suffering from various types of language problems can be aided after correct diagnosis of the level of the defect.' (Courtesy *Rehab. Lit.*)

Testing and Measurement

Allen, R. M., Suggestions for the adaptive administration of intelligence tests for those with cerebral palsy. *Cerebral Palsy Rev.*, 19, 1958, 6-7.

This is a discussion of the administration of those tests which require accumulation of information from a source or sources other than the testee. Included are the Vineland Social Maturity Scale, the Gesell Preliminary Behavior Inventory and the Cattell Infant Intelligence Scale. (*J. L. Shapley, University of Iowa*)

Fumeaux, J., Diplacousie binaurale, nouveau test de fidélité lors de lésion de l'organe de Corti. (Binaural diplacusis, a new test of fidelity for lesions of the organ of Corti.) *Acta otolaryng., Stockh.*, 49, 1958, 28-37.

The author asserts that his investigations (and those of others) indicate that the diplacusis phenomenon should be employed regularly and systematically in diagnosing lesions of the organ of Corti. It is argued that tests constructed to detect distortion of pitch sense would be more consistent detectors of lesions than recruitment tests. (*D. A. LaRusso, University of Washington*)

Goodhill, V., Stapedolysis (stapes mobilization) and the nomograph technic. *J. Speech Hearing Res.*, 1, 1958, 179-190.

The stapes mobilization procedure places great reliance upon surgical audiometry. For this procedure, the nomograph has proved useful. In the series of cases presented here, successful immediate postoperative results are reported for 71 per

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cent of the patients. (*B. A. Landes, Texas Technological College*)

HORMIA, A. L., Difference limen of intensity in hearing impairment due to craniocerebral injury. *Laryngoscope*, 68, 1958, 808-813.

'The difference limen in hearing impairment caused by craniocerebral injury was studied with the Bekesy audiograms in a series of 43 war veterans. In only four cases could a partly reduced difference limen be seen. As a possible explanation for the absence of reduced difference limen, the mechanism of the hearing impairment in connection with head blows was considered. It is a question of end-organ deafness due to concussion of the labyrinth. This concussion wave reaches the labyrinth through the bones; therefore, the inner hair cells are more prone to the damage and a more uniform damage of the organ of Corti results than in those types of end-organ deafness characterized by a reduced difference limen and presence of recruitment.

'A high difference limen was seen in one-half of the cases. In these cases signs of deteriorated (auditive) perception and attention capacities were noted. The result thus confirms the significance of psychic factors upon the incidence of a high difference limen.' (*Author's precis*)

IRWIN, O. C., A fourth short consonant test for use with children with cerebral palsy. *Cerebral Palsy Rev.*, 19, 1958, 12-14.

Seventeen words are included in this test which the author has standardized on 223 cerebral palsied children. 'It is assumed that this test, ... together with the three previously reported tests, may be used profitably by speech therapists for evaluating the articulation of consonant sounds of children with cerebral palsy.' (*J. L. Shapley, University of Iowa*)

LINDE, T., and PATTERSON, C. H., The MMPI in cerebral palsy. *J. cons. Psychol.*, 22, 1958, 210-212.

The MMPI was administered to 14 males and 19 females, ranging in age from 20 to 43. Each was severely disabled with cerebral palsy. The cerebral palsied subjects differed from the MMPI normal group to a statistically significant degree. However, there did not appear to be a specific personality type or pattern associated with cerebral palsy. Scores on tests which include items related to physical or psychosomatic conditions are probably elevated by actual presence of physical defects or complaints. The authors postulate that there may be a common tendency toward personal-social maladjustment among all handicapped individuals. (*B. S. Street, Minneapolis*)

PRICE, A. C., GARRETT, E. S., HARDY, M. W., and HALL, H. E., Perception of binaural beats in organic and nonorganic patients. *Arch. Neurol. Psychiat.*, 79, 1958, 214-216.

The experimenters reasoned that the 'beat phenomenon' might be perceived by normals but not by those with cortical damage. Fifty cases with known damage served as subjects. Three tests were administered: (1) Graham Kendall Memory-for-Design, (2) Spiral Aftereffect and (3) Binaural Beat. It was found that the Graham Kendall Memory-for-Design test accurately diagnosed 88 per cent of the cases; the Spiral Aftereffect test 84 per cent and the Binaural Beats test 76 per cent. When used together the three tests accurately diagnosed 96 per cent of the cases. (*H. J. Oyer, Ohio State University*)

RUHM, H. B., and CARHART, R., Objective speech audiometry: a new method based on electrodermal response. *J. Speech Hearing Res.*, 1958, 169-178.

Speech reception threshold is measured reliably and validly by means of conditioning with an electrodermal response as an indicator. Twenty normal-hearing subjects and 20 subjects with moderate conductive losses were used to establish validity of the method. (*B. A. Landes, Texas Technological College*)

WILDERVANCK, L. S., Consanguinity and congenital deaf mutism in the Netherlands. Are the parents of deaf children detectable as heterozygotes? *Acta genet.*, 7, 1957, 244-248.

In an attempt to determine whether apparently normal-hearing individuals can be detected as carriers of the recessive gene for congenital deafness by pure-tone audiometry, the author tested the parents in the

following groups: (1) eight consanguineous marriages (either first or second cousins), which produced a total of 12 congenitally-deaf children, and (2) seven marriages, with parents unrelated, producing a total of 19 deaf children. The author found only one parent who may have had a high-tone congenital loss; all other losses were acquired. He concludes that the 30 parents could not be detected as heterozygotes by conventional pure-tone audiometry. (*P. A. Y.*)

Speech Science

ARTEMOV, V. A., Psikhologia rechi. (Psychology of speech.) *Vopr. Psikhol.*, 3, 1957, 176-180.

The author describes research and experiments in perception, understanding and transmission of speech in the laboratory of experimental phonetics and psychology of speech at the First Pedagogical Institute in Moscow.

In *perception* of speech the psychological characteristic of accentuation is studied, such as the relationship of physical and perceived aspects of speech. For instance, the perception of physically equivalent words (in Russian pronunciation) with all syllables equally accented takes place according to the lexical aspects of the words, either as *na-ko-pá-la* (she dug up) *or na-ká-pa-la* (she poured by drops). Words with a distorted phoneme are perceived correctly in the context of the sentence. In the study of the psychological effect of pauses upon perception, the unseparated flux of speech is perceived meaningfully as separate syntagms, words and articles. Other studies deal with conscious and unconscious elements of speech perception, the relation of sounds and meanings in words, the perception of intonations and stylistic peculiarities of speech, and other topics.

The *understanding* of speech is a complex process and greatly depends upon the relationship of the perceiving subject to the material, the situation in communication, the structure of the sentences, the placing of the logical emphasis, and other factors.

The *transmission* of speech is studied in the laboratory in connection with information theory. (*B. V. Morkovin, University of Southern California*)

FLANAGAN, J. L., Some properties of the glottal sound source. *J. Speech Hearing Res.*, 1, 1958, 99-116.

On the basis of data on glottal area and subglottal pressure, dynamic relations between these factors are discussed. (*B. A. Landes, Texas Technological College*)

HATTORI, S., YAMAMOTO, K., and FUJIMURA, O., Nasalization of vowels in relation to nasals. *J. acoust. Soc. Amer.*, 30, 1958, 267-274.

Consciously nasalized vowels are characterized by an area of dull resonance around 250 cps, a weakening of resonance around 500 cps and weak and diffuse components between the formants from 1000 to 2500 cps. Physical interpretations of these phenomena are presented. (*B. A. Landes, Texas Technological College*)

MILLER, G. A., Speech and communication. *J. acoust. Soc. Amer.*, 30, 1958, 397-398.

The general unsolved problems in speech and communication acoustics discussed in this article are those concerned with the construction of machines to translate automatically from printed to spoken language, and *vice versa*. The various aspects of these problems are presented briefly. (*B. A. Landes, Texas Technological College*)

MOSER, H. M., and OYER, H. J., Relative intensities of sounds at various anatomical locations of the head and neck during phonation of the vowels. *J. acoust. Soc. Amer.*, 30, 1958, 275-277.

'Speech signals from 16 different anatomical locations were recorded as subjects intoned different vowels at a constant level. Power level analysis was made to determine relative intensity of the signals. It was found that significant difference in intensity exists among the anatomical locations. Some locations of lesser intensity were subjectively evaluated as providing more faithful signals.' (*Authors' precis*)

PIMONOW, L., Audition et analyse des vibrations en régime transitoire. (Audition and analysis of vibrations in a transient domain.) *Rev. Laryng., Bord.*, 78, 1957, 971-1013.

Transient state phenomena are defined and their importance in transmission of information (neural, acoustical, electrical) is

stressed. A system for absolute calibration of spectral analyses of 'transient acoustical vibrations' based on calculated physical constants of the ear is presented. The author also describes the apparatus he developed for analysis of transient phenomena in terms of intensity, frequency and time, and presents illustrations of several analyses of some speech sounds. (*R. Goldstein, Jewish Hospital of St. Louis*)

REES, M., Some variables affecting perceived harshness. *J. Speech Hearing Res.*, 1, 1958, 155-168.

In order to investigate the effect on perceived harshness of vowels, consonant environment and vowel initiation, twelve speakers with clinically diagnosed harsh voices recorded lists of syllables. The recordings were judged in terms of harshness by a group of listeners. Results are discussed in terms of the effects of the above factors. (*B. A. Landes, Texas Technological College*)

RUTH, W., Die mit dem kunstgerechten Singen verbundenen Sinnesempfindungen der Zwerchfellstütze und der Kopfresonanz im Lichte der neureren Physiologie. (The sensations of support by the diaphragm and of head resonance in the light of the newest physiology.) *H N O, Berlin*, 7, 1958, 50-58.

The writer refers chiefly to four papers. (1) The first is R. Luchsinger's tomographic studies on seven tenors and three baritones showing the difference in shape of the glottis and of the vocal cords during the singing of a falsetto and of a full tone. The glottis stays open during the head tone. A real artist has quite different sensations during the production of chest and of head resonance. In the latter he feels that much is going on in the chest and in the diaphragm while there is no special feeling in the vocal cords. (2) The writer mentions a paper of this reviewer from 1929 proving that in the head voice of good singers, and also in the chest voice, no real closure of the glottis takes place. Belussi examined 12 singers (soprano to bass) with X-ray. The open glottis is visible in the different types of voices at different pitches. It is remarkable that Bellussi found in all types that the opening of the glottis is above the interval c'-f'. The writer tries to explain the feeling in the diaphragm and states that real artists feel it in all the pitches. The constant opening of the glottis is present only in very well-trained voices. The distance between the true cords and the false cords is greater in the falsetto. (3) Ruth's earlier paper on the influence of swallowing on voice production is quoted. The lifting of the larynx and its damaging influence on voice production is discussed. This lifting of the larynx diminishing the distance between the lower and the upper cord is also visible. The rising of the larynx is due to the swallowing action which should be eliminated. (4) Goerttler's anatomic studies of the muscles of the larynx are extensively quoted. Also quoted are the results of Musehold's stroboscopic studies and, again extensively, Luchsinger's studies on the amount of air used in singing with the well known fact underlined that the best voices use the least amount of air. Ruth ends the paper with theoretical as well as practical conclusions about the differences between good and bad voices. These conclusions are derived from the papers quoted as well as from his own great experience as a teacher. (*E. Froeschels, New York City*)

THURMAN, W. L., Frequency-intensity relationships and optimum pitch level. *J. Speech Hearing Res.*, 1, 1958, 117-123.

An experiment was performed to test the efficacy of one method of determining optimum pitch. Results showed little consistency among observers who were charged with the task of determining that point at which a subject's voice increased in intensity (corresponding, theoretically, to optimum pitch) as he sang up and/or down the scale. (*B. A. Landes, Texas Technological College*)

Book Reviews

Ernest H. Henrikson, *Editor*

AKIN, JOHNNYE, *And So We Speak*. New Jersey: Prentice-Hall, Inc., 1958. Pp. 249. $6.00.

This book, planned as a handbook for those interested in improving their speech and college students in voice and diction and phonetics courses, can also be helpful to speech therapists. The material is intended to make the learner more speech-conscious and to develop a critical awareness of his linguistic environment. Articulation and pronunciation are treated in the first part of the book, and voice production and its relation to speech in the second.

The author states that there is no single standard of pronunciation in this country, and that there are variant pronunciations which are socially acceptable. Phonetic material is so organized that one new sound is treated at a time.

Chapter titles in Part I are: Your Linguistic Environment, Front Vowels in Detail, Back Vowels in Detail, Central Vowels in Detail, Diphthongs in Detail, and Consonants in Detail. Diagrams of tongue positions for the various vowels and consonants and descriptions of how they are formed are presented schematically. Each vowel and diphthong is given in the initial, final and medial positions and in combinations with 25 consonants. Consonants are given in initial, final and medial positions with 19 vowel and diphthong combinations. Faulty utterance due both to addition and raising of vowels is explained and represented phonetically.

The second part of the book dealing with voice consists of the following chapters: Your Voice Is You, Respiration for Speech, Phonation for Speech, Resonation for Speech, Intonation and Rhythm for Speech, Rate for Speech, Audition for Speech and Your Linguistic Future. A brief description of each of the topics provides a background for the exercises which follow.

Illustrations and charts which help the student understand the material better include charts which classify consonants according to their formation, as labio-dental, *etc.* Drawings of the lungs, diaphragm, thoracic cage, interior and exterior views of the larynx, and phonetic power and frequency ranges of vowels and consonants based on the work of Fletcher and others are also included. Bibliographic references at the end of each chapter include standard works and articles in linguistic and speech journals. Summaries which close each chapter crystallize the central idea. Drill and exercise materials range from word lists to poems and prose selections.

This book presents a desirable balance between concepts and practice materials. It should be of real value in helping the reader to understand the problems considered; it also gives him systematically planned and well-presented specific materials for dealing with articulation and voice problems.

ALFRED J. SOKOLNICKI
Marquette University

LONGERICH, MARY, *Manual for the Aphasic Patient*. New York: The MacMillan Company, 1958. Pp. 277.

This manual is a supplement to *Aphasia Therapeutics* by Longerich and Bordeaux, which appeared in 1954. The author attempts the difficult task of presenting detailed procedures for beginning aphasia therapy with specific techniques and clinical materials.

The manual is divided into three parts. Part One contains suggestions for the family of the aphasic patient. The author demonstrates considerable experience and outstanding clinical sensitivity in understanding and dealing with questions frequently asked by members of the aphasic's family.

Ernest H. Henrikson is Professor of Speech and Director of the Speech and Hearing Clinic at the University of Minnesota.

The 34 specific suggestions should make a valuable contribution to the welfare, well-being and necessary adjustment of the family unit.

Part Two contains procedures and techniques for the professional worker. This section is further divided into (1) suggested procedures for beginning aphasia therapy, (2) exercises for speech musculatures, (3) lip and tongue movements, (4) writing and (5) drills for articulations. The author presents a wealth of significant clinical techniques in sufficient detail to be easily read and followed by lay helpers as well as professional workers. The most serious limitation of this particular section, as well as of the entire manual, lies in the fact that the author does not offer a clear discussion of the basic principles underlying aphasia therapeutics. It is the opinion of these reviewers that the value of any clinical material depends upon an understanding of the rationale and principals involved.

Part Three contains drills for patients with receptive aphasia and drills for patients with expressive aphasia. Basically the drills are good and are presented in sufficient quantity to provide a valuable source of clinical materials.

In summary, this manual makes a significant contribution to the clinical facet of aphasia therapy. It offers a major compilation of techniques and materials which should make it a valuable handbook for those who work with aphasic patients.

RUBY SIMMONS and LYDIA LANDIS
Veterans Administration Hospital, Minneapolis

BRERETON, BEATRICE LE GAY, *The Schooling of Children with Impaired Hearing*. Sydney, Australia: Commonwealth Office of Education, 1957.

About 1940 there was an epidemic of Rubella (German Measles) in the Commonwealth of Australia which resulted in an inordinate number of deaf and hard of hearing children entering school around 1945 as a result of their mothers' having had the disease during pregnancy. There were children among this group with moderate, severe and very severe losses in hearing. Some of them were placed in classes with normally hearing children; others in classes for the deaf and hard of hearing in regular elementary schools and others were placed in segregated graded schools for the hearing handicapped.

Because of the large number of children available and the possibility of comparing different types of educational plans for the deaf currently in operation in Australia, a study was set up which purported to compare three groups of children attending three types of schools in two general areas in which deaf and hard of hearing children are known to have greatest difficulty: (1) learning to use and understand language and (2) language problems in relation to school activities. These factors were measured in relation to a child's own abilities and limitations aside from the degree of hearing loss. The total problem was studied as it was related to school environment.

In the first section of the study, the author outlines the educational problems of the deaf and hard of hearing child in a manner that convinces one of the author's thorough understanding of the total situation which she has studied. One is impressed by her knowledge, not by her prejudice in one direction or the other.

In the second section, she reports the manner in which she has appraised the success of three groups of children (the first with hearing losses of no more than 45 db, the second group with losses of no more than 60 db and the third with losses of 75 db or greater on their ability: (1) to use speech and (2) to speak clearly.

The author includes samples of her measuring instruments and comparison scores made by normally hearing children of comparable age with each of her groups of hearing impaired children.

Section three is a study of how the language problems of a deaf and hard of hearing child affect his success in other school activities. In the first chapter of this section, she has studied the reading problems of each of her three groups. Again, she has included her measuring stick and the scores of normally hearing children as a basis for comparison. She has studied their understanding of what they read in like manner and she goes on to study the effect of retarded language development on the concept of number.

Because school activities are not just a matter of 'Reading, Writing and Arithmetic' but are concerned, as well, with a hard of hearing child's social development and his ability to get on in a group of normally hearing children, she has attempted to study how each of her three groups stacks up in that regard.

Her third large section is an appraisal of individual differences other than hearing loss that may have an effect upon success or failure among her three groups. She has studied variations in intelligence, differences in the skill of these children in turning sounds into meaningful words and variations in the attitudes of the children toward their handicap.

In the latter section the author has attempted to evaluate the effect of school environment on the ability of each of her groups to learn and to use language effectively and on their academic achievement.

To the knowledge of this writer, no such comparison study has ever been done in this country. There are, however, vehement advocates of each of the educational plans under scrutiny in this study who will find interesting reading in these pages. It should be required reading in all teacher-training programs for people learning to work with the deaf and hard of hearing and for those, perhaps, who have had long experience in the field.

Judged from the standpoint of rigorous research techniques, Miss Brereton's study may be found lacking; but in no instance has she failed to describe, in detail, her measuring instrument—how it was used and how she arrived at her results. In some instances, her narrative becomes a bit reiterative as she makes sure that her conclusions will not be overly or improperly interpreted and that she has been entirely fair to everyone involved.

As an audiologist, this writer wishes that she might have been an active, rather than an armchair participant in this study. It makes a real contribution to our field of knowledge about deaf and hard of hearing children.

JACQUELINE KEASTER
Children's Hospital, Los Angeles

CHAMBERLAIN, N. H., HOOKER, O. J., and WAGNER, W. H., *A Speech Readiness Guide for Parents of Severely Retarded Children.* Rochester: An Olnay Series Publication II, 1956. Pp. 79. $1.50.

This guide, in outline form, is primarily for the parents of severely retarded children with speech problems. Its purpose is 'to demonstrate the various aspects of speech readiness, and to provide experiences which have proven helpful in stimulating speech.' As to defining 'severely retarded,' the authors state that the activities presented in the guide had been used with children 'whose speech development was far below the average for their chronological age.' The activities are simple to follow, should be interesting to the child, progress in difficulty and require equipment that is easily attainable. The guide was not intended to be complete, and the material presented should be molded to the needs of the child.

Lessons are planned dealing with the following areas of speech development: Identifying the Speech Organs, Imitating Movements, Speech Exercises, Ear Training, Breath Control, Language Motivation, Vocalization, Vocabulary Experiences, Learning a Vowel and Combining a Vowel and a Consonant.

In this reviewer's opinion, the authors accomplished their purpose. The guide would be most effective if used as a part of a therapy program with parent counseling by a qualified therapist. The many variables in the total process of therapy were not intended to be dealt with in this guide. However, the attitudes and understanding of the person working with the child, the psychological climate, emotional disturbances, *etc.*, are of importance in any remedial speech program.

The guide serves a definite need as more retarded children are having the opportunity of training. The excellence of the guide is in its emphasis on giving the child many experiences so that he will have much that he wants to communicate. Therapists, teachers, volunteer workers, as well as parents, will find the guide rich in ideas that may stimulate speech.

LORETTA G. BROWN
Anniston, Alabama, City Schools

MICHAL-SMITH, H., *Management of the Handicapped Child.* New York: Grune and Stratton, 1957. Pp. 276. $6.50.

This book is suited to professional workers and students preparing for professions dealing with the handicapped. Clinicians, therapists, nurses, teachers, recreation and social workers who meet handicapped persons daily can profit from the over-all treatment this book offers. As a compendium of chapters written by 18 professional contributors, this book does not intend to give a detailed coverage of all the fields. It does,

however, give basic terminology, incidence, etiology and some therapy approaches. The editor's purpose was to present an authoritative survey of most recent developments in the sciences and community services which affect children needing special assistance, treatment and rehabilitation. That goal was met in specific chapters: The Child with Severe Behavior Disorders, The Child with 'Nervous' Habits, The Child Who Is Mentally Gifted, The Socially and Emotionally Deprived Child in Institutional Care, The Child with Speech and Language Disorders, The Child with Impaired Hearing, The Visually Handicapped Child, The Child with Cleft Lip and Palate, The Child with Disorders of Physical Growth, the Child with Neuromuscular Disease, Cystic Fibrosis and Celiac Disease in Childhood Malnutrition, The Child with Nephrosis, and Community Aspects and Care for the Handicapped Child.

Chapters of special concern to speech and hearing rehabilitation workers in particular are those dealing with speech and language disorders, hearing impairments and cleft lip and palate.

Harlan Bloomer, the author of the chapter on 'The Child with Speech and Language Disorders,' deals with the function of speech and language, and speech and language as modes of behavior. He includes definitions, pathology, incidence and classifications of speech and language disorders. 'Speech symptoms, properly read and interpreted, are not only symptomatic but can be diagnostic of the life of the individual,' states Bloomer. Stuttering, cluttering, voice and articulatory as well as language disorders are discussed in the chapter.

William G. Hardy and John E. Bordley are authors of the chapter entitled 'The Child with Impaired Hearing.' They warn that a hearing loss constitutes a serious source of deviant development and behavior when it exists to a mild degree. Types of hearing impairments are listed: conductive, peripheral nerve, central nerve and psychogenic. Several case histories are given to describe the symptoms. Treatment of childhood hearing impairment is discussed in sub-topics on detection and conservation, habilitation and rehabilitation, education and special education.

The chapter 'The Child with Cleft Lip and Cleft Palate' was written by Edward F. Lis. In it, he defines cleft lip and cleft palate, palatopharyngeal function. An outline of diagnosis of palatopharyngeal incompetence is given with drawings. Other topics treated in the chapter pertain to surgical considerations, feeding the infant with a cleft, timing of palatal surgery, dental speech appliance, special education and family counseling problems.

The final chapter on 'Community Aspects and Care for the Handicapped Child' was written by Helen M. Wallace. The extent of the problem, incidence, prevalence and trends reinforce the material in the preceding chapters. Community services for the varied handicaps are discussed under such topics as: case finding, education, diagnosis, treatment, rehabilitation, recreation, housing, home and foster home and custodial care.

Although each chapter lists its own bibliography, the final part of the book lists 'Recommended Readings for Parents,' books and magazines dealing with subjects discussed in the book. This section also lists addresses of professional associations such as The National Society for Crippled Children and Adults, the Volta Bureau and the American Speech and Hearing Association.

Although it is difficult to cover so many subjects with any thoroughness in 276 pages, at least the basic terms and ideas were covered offering the reader a picture of the many facets to handicaps and the many rehabilitative resources and techniques which are necessary to 'manage' them.

ALFRED J. SOKOLNICKI
Marquette University

News And Announcements

Severina Nelson, *Editor*

Significant Trends in the Professions

An increasing interest in the technical study of speech and language and the application of computers to this field has provided the incentive for the carefully formulated research program which has been in operation for approximately one year at the University of Michigan under the chairmanship of Gordon Peterson, Speech Research Laboratory.

The Graduate School is offering this interdisciplinary program in the general field of Language Models and Logical Design. The program, which is administered by a continuing committee of the Horace H. Rackham School of Graduate Studies, involves a core curriculum of mathematics and engineering. In addition, every student is expected to acquire certain information from at least one of the areas of psychology, philosophy, speech or linguistics and to obtain related research experience during his graduate study. As the program develops, special courses and seminars are to be offered integrating relevant information from these areas.

Personnel on the committee administering the program are associated directly with the Engineering Research Institute, the Willow Run Laboratories, the Electronic Defense Group, Operations Research, the Speech Laboratory and the Mental Health Research Institute, all of which provide special research opportunities in various aspects of this field. Superior students may secure research assistantships in these laboratories or may apply for special funds for scholarships and grants. In describing the specifics of this program, the University catalog statement reports:

> This program is designed to cover some problems and fields which stand in a unique relation to the physical sciences. On the one hand their problems involve language, and on the other they require knowledge of the results and techniques of mathematics and engineering. The term 'language models' refers to representations of artificial as well as natural languages; the area includes codes, symbolic language of mathematical logic, and instructional languages for computers. The term 'logical design' covers the logical structure and synthesis of both digital (discrete) and analog (continuous) computers, as well as automatic systems capable of responding to artificial and natural languages.
>
> This program is directed toward the mechanical and mechanizable aspects of linguistic behavior. The emphasis is on models for natural language and for artificial languages which are closely related to natural languages; interrelations among these models are also studied. The program is devoted to fundamental theories and to applications of those theories in natural and automatic systems. Such areas as the mathematical theory of information and mathematical logic provide the basis for the development of language models. In the field of logical design the emphasis is on the theory of automatic systems capable of performing human functions involving symbolization. The following is a sample of special topics falling within the area: data processing in relation to the fields of psychology and linguistics, theory of automatic computed programming, psycho-physics of communication, automatic speech produc-

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News and Announcements is edited by Severina Nelson, University of Illinois, assisted by the following committee: Richard Brett, Waukegan Township High School; Martha Black, State of Illinois Office of Public Instruction; Laura Wright, Alabama College; Helen Knight, Evanston Township High School; Katherine de Hirsch, Columbia Medical Center; Ronald Tikofsky, University of Michigan; Sue Earnest, San Diego State College; J. Buckminster Ranney, Alabama Polytechnic Institute; and Charles Hutton, University of Illinois.

tion and recognition, mechanical translation of languages, theory of neural nets, simulation of brain models on digital computers, and techniques of automation to perform such human functions as learning and reasoning.

With Gordon Peterson serving as adviser to the students, the program on Language Models and Logical Design should provide stimulating ramifications to those graduate students who would like to attain the professional status offered by this type of scientific design.

Key names from all professions make up the illustrious roll call which links particular fields and endeavors to the medical profession as 'partners in progress' in the 75th Anniversary Issue of the *Journal of the American Medical Association*, July 12, 1958. The Editor, Dr. Austin Smith, has unified the various articles from acknowledged leaders, internationally known, with penetrating comments on significant and challenging changes which have occurred during the last 75 years and with the notation that what is on the horizon seems even more fantastic to contemplate. These changes occur because each field contributes to the other through the type of men recognized in this issue, men whose writings indicate an appreciation of a fundamental fact: they are all partners in progress. The interaction of men of responsibility, understanding and leadership—as those recognized in this issue from the fields of medicine, business, law, life insurance, news communications, film, agriculture, engineering, education, chemistry, industry, aviation, sports, publications—provides the partnership living and progress. Dr. Smith concludes, 'Perhaps the people in some of the countries elsewhere might have had fewer problems if they had paused long enough in their work and play to encourage men and women to shake hands with each other as partners in orderly progress. Maybe there would be less fist shaking today.'

To list the men honored in the Anniversary Issue would be to reduce the surprise element for the reader. Perhaps one hint will arouse curiosity: John Steinbeck's 'Dedication' is the most sharply etched and distinctive of all the articles.

The World Veterans Federation, organized in Paris in 1950, has been swinging into action throughout many countries. The graphic story of the medical ventures, as logged by Dr. Douglas D. Toffelmier in 'A Year in Solo,' records his work for the United Nations and WVF in Indonesia. Similar accounts of this trend for the modernization of medical facilities for the orthopedically handicapped in Africa, Asia, Australia, Canada and France are mentioned in the official publication of WVF, *Rehabilitation Bulletin*, No. 13.

The Federation carries out a wide range of activities in a variety of rehabilitative fields. It provides the machinery for liaison among its 139 member associations in 36 countries; it encourages mutual understanding among nations and serves as a medium between the veteran and his community interests. In the latter social service, it helps in the rehabilitation of the disabled through technical assistance, exchange programs, publications; contributes to land settlement, housing programs; works towards the improvement of legislation for veterans. The social and individual problems raised by disability have now been recognized in official circles, and according to the *Bulletin*, joint action on a world scale has made for the dynamic cooperation of countries in all parts of the world. United Nations, specialized agencies and non-governmental organizations have conducted coordinated programs with the Federation. The chairman of the WVF Board is M. Kurt Jansson, Officer in Charge of Rehabilitation, Social Services Section of the United Nations. Other Board members are from France, Netherlands, Great Britain, Belgium, U.S.A., Finland, Yugoslavia, Indonesia. Address: 16, rue Hamelin, Paris-16e, France.

As this copy goes to press on a hot August day, general interest in professional trends temporarily has found easement in vacation spots in different parts of the world. In our browsing moments, the following excerpts prodded us into thoughtful activity:

Lawrence G. Derthick, U. S. Commissioner of Education, speaking before the National Press Club, after his return from a month-long study of the schools in the USSR, said:

> What we have seen has amazed us in one outstanding particular: we were simply not prepared for the degree to which USSR is committed to education as a means of national advancement. Everywhere we

went we saw indication after indication of what we could only conclude amounted to a total commitment to education. Our major reaction therefore is one of astonishment—and I chose the word carefully—at the extent to which this seems to have been accomplished. For what it is worth, the American educators came away sobered by what they saw.

Kamela Vi Nimbkar, O.T.R., President, All India Occupational Therapists' Association, writes concerning the profession of speech pathology and therapy:

We have long felt the need for something of the sort (guidance in development of speech of the cerebral palsied and others) in this vast country of India which does not have, as far as we know, any qualified Speech Therapists. We understand that some Indian nationals are now abroad studying the subject and we have recently assisted a young member of the medical profession to go abroad for the complete training so that there may eventually be someone available to set up training courses in India. The U. S. Education Foundation has arranged for the services of a Speech Pathologist as a consultant to the Government of India, Ministry of Education, for a period and undoubtedly her work has been useful and laid a foundation for further development.

Benjamin Brickman, in his article, 'Let's Bury the "Liberal,"' *AAUP Bulletin*, June 1958, writes:

Certainly, the rapidly expanding fields of learning are imposing tremendous pressures on those charged with the responsibility of drawing up curricula, as well as on the councils of learning deliberating on the problem. But it is important to call attention to the mischief of a word to which we unwisely cling. To many it is goddesslike, and each devout worshipper claims that it smiles on him only and speaks the true message to him only. Actually, each one is creating his own object of adoration. For to ask, 'What is a liberal education?' is to invite a variety of answers, each of which contains two faults—first, it fashions the meaning of 'liberal' to fit an already tailored curriculum, and second, far from being a good fit, it is actually a mask that conceals serious flaws or inconsistencies.

Thomas D. Bailey, chief State school officer of Florida, reported to the National School Boards Convention that our burgeoning interests in science and mathematics border on hysteria and he believed with Governor Collins of Florida:

Everyone is saying we must do 'something' about education and that 'anything' might be confused with 'something'; that our destruction may come through an obsession with science; and that we should be most concerned with a way out of this race towards suicide, not a faster way of getting there.

According to *School and Community*, Missouri State Teachers Association:

The English teacher still remains the key figure in teaching communication skills (reading, writing, speaking, and critical listening) to the student of science and mathematics. The search for brilliant students will reveal to the general public what English educators have long emphasized—that our most rational students are often incapacitated by verbal blocks—that faulty training in the communication skills so stymies the brilliant child that he remains a serious social and intellectual loss to his country.

Dr. James Conant, President Emeritus of Harvard University, reported at the convention of the American Association of School Administrators:

The tendency to be satisfied with two years of foreign language in a high school is most regrettable; it is like drilling for oil and stopping just before oil is reached. . . . To have learned what it means to have mastered another language is a great educational experience that opens many doors. But a brief exposure to a foreign language that leaves no residue is almost a waste of time.

N.E.A., in a 16-page leaflet 'Compare the Costs,' has published a report from the Committee on Tax Education and School Finance which found that education is priced attractively low in comparison with other professions and activities:

One hour's schooling under a trained teacher in a planned program of learning costs 33 cents while an untrained baby sitter who offers limited activities and no program is paid 50 cents an hour (the

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parent also provides the furniture, TV, telephone, transportation and food); for this same 33 cents that pays for one hour of public education, one can get one-fifth of a haircut, one milkshake or one gallon of gasoline; education costs less than the amount spent for defense, homes, drinking and smoking, automobiles, or recreation; the cost of crime is $50 billion annually while the cost of education comes at bargain rates of $14 billion annually.

Education Fact Sheet, published by the Office of Education, reports:

> The teacher salary situation does not always have an anemic look. For example, the range for Oak Park, Illinois, Elementary Schools now is from $4600 to $12,000. Full professors at Harvard University will receive from $12,000 to $20,000 a year, with an average of about $15,000.

International Council for Exceptional Children has tabulated these figures:

> Among the 33.5 million elementary and high school pupils, 6.7 million are slow learners, 80,000 are exceptionally bright, 80,000 are mentally retarded, 200,000 are physically handicapped in some way, and 40,000 are emotionally disturbed.

Dr. Walter Jacob, Director of the Training school at Vineland, New Jersey, states in *Project News*, May 1958:

> Statistics alone bring the over-all problem (mental retardation) into sharp focus, for whether one accepts minimum estimates of 3,000,000 or more inclusive estimates of 10-15,000,000 retarded persons, the numbers are appalling, far exceeding those afflicted by heart disease, polio, or cancer.

National Society for Crippled Children and Adults, a 37-year-old organization, reports:

> The film 'Reach for Tomorrow' required 10,000 miles of travel and 10,000 feet of film taken at 10 representative Easter Seal centers in eight states, coast to coast. The new headquarters building, costing $550,000, will serve as a national nerve-center for a federation of some 1600 societies in every state and three territories, which last year brought direct rehabilitation services to 160,000 crippled persons through 1400 treatment centers, camps and other facilities.

Eugene Rabinowitch in an article, 'Science and Humanities in Education,' *AAUP Bulletin*, June 1958, says about our age:

> The world, and an America inextricably involved in it, has entered an era of instability, of breath-taking changes, of terrifying dangers and blinding promises. . . . For any nation, even the most powerful one, to hope that it can quietly enjoy political stability and economic prosperity in the midst of the vast turmoil which now engulfs the earth would be a dangerous delusion. We are educating a generation whose main aim in life will be security, in an age which is, and will remain, abundant in everything but security.

News and Announcements

Project News, reporting developments in the field of mental retardation, tells of a Conference on Diagnosis in Mental Retardation which was held at the Training School at Vineland, New Jersey, to stimulate competent standards in diagnosis. Conference mornings were devoted to disciplines in the technical-consultive areas, neuro- and electrophysiology, neurology, obstetrics, biochemistry and metabolism-endocrinology. Afternoons were given to disciplines which would include the permanent staff of a diagnostic center: psychiatry, clinical psychology, education, and speech and hearing.

The Maryland Association of Speech and Hearing Therapists brought two well-known authorities together at a recent meeting to discuss one of the most challenging subjects in speech pathology: the subject, aphasia; the speakers, Kurt Goldstein, M.D., and Wendell Johnson, Ph.D.

The appropriation bill for the Department of Health, Education and Welfare, H.R. 11645, was approved by the House this year with the current 15 per cent ceiling on payments to colleges and universities for overhead costs of research contracts. President Carroll V. Newsom, New York University, testified before Senator Hill's subcommittee on May 13 as to the adverse effects of the 15 per cent current limitation on contract

payments. Consequently, the Senate passed the bill June 20, 1958, with a recommendation for removal of the 15 per cent ceiling for indirect costs for research contracts as provided in the present law. This Senate version was scheduled to go before a conference committee of the Senate and House with the assurance from Senator Hill, as quoted from the Congressional Record of June 20, that those who represent the Senate would make every effort to have the 15 per cent allowance increased and certainly to obtain the 25 per cent recommended by the Department of Health, Education and Welfare. The Bill was passed, however, without an increase in indirect costs for research contracts.

School Life, the official journal of the Office of Education, records in the June 1958 issue Wendell Johnson's plea for listening more to what the child says and means than to his 'surface noises.' The article 'In the Listener's Ear' summarizes a speech given by Dr. Johnson to the staff of the Office of Education. During his six months as consultant on speech and hearing in the Office's Section for Exceptional Children and Youth, Dr. Johnson has prepared a bulletin, *Speech Correctionists: The Competencies They Need for the Work They Do*. Romaine P. Mackie, Chief of this Section, collaborated. Available from Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C., for 45 cents.

The following clinics will be open for visitors during the November convention:

1. Bellevue Speech and Hearing Center, First Avenue and 26th Street. Director, Donald Markle. Open for visitors, November 18, a.m.
2. Speech and Hearing Center, Lennox Hill Hospital, Park Avenue and 77th Street. Director, Mrs. Markevitz. Open for visitors during the days of the Convention, 9:00-11:00 a.m.
3. Speech and Audiology, Department of Otolaryngology, Columbia Presbyterian Medical Center, 168th Street and Broadway. Director, Mrs. Shulamith Kastein. Open for visitors during the days of the Convention by appointment.
4. Pediatric Language Disorder Clinic, Columbia Presbyterian Medical Center, 168th Street and Broadway. Director, Mrs. Katrina de Hirsch. Open for visitors, November 17 and 19, a.m., by appointment.
5. Flower Fifth Avenue Hospital, Fifth Avenue and 105th Street. Director, Robert Freibern. Open for visitors, November 17, 9:30-12:30; November 18, 9:30-3:00; November 20, 9:30-3:00.
6. Cerebral Palsy Clinic, Hospital for Special Surgery, 535 East 70th Street. Director, Miss Virginia Rose. Open for visitors every day except Tuesday and Thursday mornings.
7. New York Infirmary, 321 East 15th Street. Director, Mrs. Regina Wohlman. Open for visitors, November 19 and 21, 1:00-3:00 p.m.

The Oto-Audiologic Seminar, sponsored by the Deafness Research Laboratory and the Hearing and Speech Clinic, Children's Hospital of Los Angeles, will reconvene this fall with a program devoted to laryngeal pathology and disorders of voice. Future seminars contemplated for the coming winter and spring have been tentatively titled 'Neurophysiology of the Auditory System' and 'Oto-Audiologic Aspects of Cleft Palate.'

With the arrival of George Misrahy, M.D., Ph.D., from the Bio-Acoustics Branch (WADC) Dayton, and Bruce Deatherage, Ph.D., currently Post-Doctoral Research Fellow (NIH) with the Department of Psychology, University of Chicago, the Deafness Research Laboratory, Children's Hospital, Los Angeles, will expand its program of auditory research. The Laboratory, formerly associated with the Institute for Medical Research, Cedars of Lebanon Hospital, is one of five major research laboratories housed in the Santa Anita Foundation Building at the Children's Hospital. The Deafness Research Laboratory is under the supervision of Victor Goodhill, M.D., Director, Arthur Holcomb, E.E., Associate Director. The present staff also includes Aram Krajian, D.Sc., and Victor Garwood, Ph.D., Research Associates. Present projects are in the areas of temporal bone pathology, electro-neurophysiology and psychoacoustics.

A $50,000 grant from the Colonel Robert R. McCormick Charitable Trust to finance a section of the new headquarters of the

National Society for Crippled Children and Adults in the West Side Medical Center in Chicago has been reported by Paul Dietrich, President. This particular section will be devoted to the nation-wide Personnel and Training Service which is responsible for recruitment, training and placement of young people in the rehabilitation professions, such as physical, occupational and speech therapies.

At the June 1958 graduation, Helmer R. Myklebust, Director, Institute for Language Disorders in Children, Northwestern University, received an Honorary Doctor of Letters from Gallaudet College. Dr. Myklebust received an M.A. at Gallaudet in 1935.

The receipt of a $5000 grant from the Louis D. Beaumont Foundation for the furtherance of research in the field of surgical rehabilitation of hearing at the Jewish Hospital of St. Louis has been announced by Dr. Ben H. Senturia, Director of the Department of Otolaryngology.

The surgical rehabilitation program is a recently expanded one, functioning on both clinical and research levels. It includes a comprehensive pre- and post-operative hearing testing program, under the supervision of Dr. Robert Goldstein; an evaluation of the function of the Eustachian tube; and surgical correction of the pathologic changes which involve the ear drum, ossicular chain and middle ear. Dr. Jacob Sade, Research Fellow in the Department of Otolaryngology, is assisting in the latter activities.

Twelve American and Canadian leaders in rehabilitation, under the chairmanship of Lawrence J. Linck, Chicago, have been appointed members of the Congress Committee to make plans for the Eighth World Congress of the International Society for the Welfare of Cripples, to be held in New York in 1960. Mr. Linck, formerly executive director of the National Society for Crippled Children and Adults, is now treasurer of the International Society and vice-chairman of the Chicago chapter of the National Multiple Sclerosis Society. The Committee will take a key role in organizing the week-long session, which will open August 29 at the New York Waldorf-Astoria Hotel. It will be attended by authorities and volunteers from more than 50 countries who will exchange techniques contributing toward the rehabilitation of the world's physically handicapped. The last triennial world session, held in London in 1957, was attended by 1200 delegates from 53 countries.

The South African Logopedic Society (Society of Speech Therapists) publishes its *Journal* in May and October. Subscriptions are 10 shillings per annum, including postage. Address: Celeste Ordman, Editor, *Journal of the South African Logopedic Society*, Witwatersrand University, Johannesburg, South Africa.

During this last year, the Seattle Central Lions Club has sponsored the journal *The Foreign Student Speaks* as a national organ for foreign student expression. It is published three times a year, with deadlines for contribution occurring October 30, January 31, April 30. Copies available at $1.50 each. Address: W. F. Marquardt, Department of English, University of Washington, Seattle 5, Washington.

American Hearing Society re-elected Walter C. Laidlow, Detroit, Michigan, to the presidency at the thirty-ninth annual conference in San Francisco. Mr. Laidlow, Executive Vice President and General Manager of the United Foundation of Metropolitan Detroit, is well known throughout the country for his leadership in the field of financing health and community services. Philip M. Morgan, President of the Morgan Construction Company, Worcester, Massachusetts, was re-elected first vice president. Miss Mary E. Switzer, Director, Office of Vocational Rehabilitation, Department of Health, Education and Welfare, Washington, D. C., was re-elected second vice president. The following persons also were elected to national offices: treasurer, E. B. Whitten, Executive Director of the National Rehabilitation Association, Washington, D. C.; assistant treasurer, Harley Z. Wooden, Executive Secretary of The Council for Exceptional Children, Washington, D. C.; secretary, Mrs. Fred C. Nelson, St. Paul, Minnesota.

The Southeast Alaska Speech and Hearing Program was initiated in 1957 in Juneau, Sitka, Mt. Edgecumbe and Sheldon under the joint sponsorship of Alaska Crippled

Children's Association chapters and of the Alaska Department of Health. It was later extended to Petersburg, Wrangell and Haines. During the first part of 1958, the communities of Metlakatla, Ketchikan, Annette, Hydaburg, Craig and Klawock planned programs. Through the Alaska Office of Vocational Rehabilitation, services have been offered to adults, including diagnosis, consultation and therapy. Mrs. Henrietta C. Krantz, Alaska Department of Health, is director of the program.

The National ASHA Office would appreciate receiving copies of books written by former Association members, now deceased. Inasmuch as many of these publications are often out of print, the National Office Library has no way of obtaining them except as gifts from some interested members. At the top of the roll call is the name of Dr. Max Goldstein. If any members have copies of his books, Kenneth John[illegible], Executive Secretary, would be grateful for donations for this permanent library. The pooling of these publications should be of profesional interest to all members. Address: 1001 Connecticut Avenue, N.W., Washington 6, D. C.

Through funds made available by the Gillespie Fund administered by the Children's Hospital in Pittsburgh, Betty Jane McWilliams, Ph.D., director of the children's division of the Speech Clinic, University of Pittsburgh, spent four weeks in England this summer studying cleft palate. Dr. McWilliams' study was concerned with the evaluation of speech results in English cleft palate children following early surgery on the cleft. Her research was carried on in the major centers in the British Isles.

State governors have been invited by Marion B. Folsom, Secretary of Health, Education and Welfare, to appoint special committees to take stock of the problems of children and youth in preparation for the next White House Conference. President Eisenhower has announced that the conference will be held in March 1960. It will be remembered that President Theodore Roosevelt convened the first conference in 1909. The officials of the Children's Bureau, which initiates plans for the meeting, have been consulting with officials of national organizations concerning a theme for the meeting. The national advisory committee will select the theme and be responsible for the direction of the Conference.

Marion B. Folsom, who has resigned as secretary, has been replaced by Arthur S. Flemming, 53-year-old president of Ohio Wesleyan University. Mr. Flemming has had many contacts with college and federal agencies: appointment to Civil Service Commission in 1939; Chief of the labor supply division in the Office of Production Management, 1941-1945; member of the Navy Manpower Survey Board; Chairman of the management-labor policy committee of the War Manpower Commission; Director of Defense Mobilization; member of the Committee on Organization of the Executive Branch of Government; active member of the National Council of Churches.

The pamphlet, *Needed Expansion of Facilities for Higher Education, 1958-70,* is a report prepared for the American Council on Education by John D. Long, School of Business, Indiana University, with the statistical assistance of J. B. Black, Jr., Indiana University. This report should be useful to those engaged in making plans for the future of higher education in this country, for the problem is: What amount of money will be needed between now (spring 1958) and 1970 by colleges and universities in the United States for replacement and expansion of the physical plant? The answer arrived at by the authors is: The total estimated funds for replacement and expansion of college and university physical facilities (with no provision for purchase of additional land) will fall between a high of about $15 billion and a low of about $12 billion. The intricacies involved in assessing the projected enrollment and the average cost per *additional* student which included the space standard per additional student as well as an average construction cost measure provide interesting calculations. Address: American Council on Education, 1785 Massachusetts Avenue, N.W., Washington 6, D. C.

The Committee on Conservation of Hearing of the American Academy of Ophthalmology and Otolaryngology has proposed to test audiometers for conformity to the standards established by the American

Standards Association. The Academy has taken this step because it represents a large group of users of audiometers. Details of the procedures to be followed can be found in the March-April issue of the *Transactions of the Academy*.

The Pennsylvania State Legislature recently passed a law which transfers the responsibility for the hearing testing of school children from the Department of Public Instruction to the Department of Health. The law specifies that children in the primary grades shall have their hearing tested every year and children in the secondary grades every other year.

In 30 major American cities, educational television on a noncommercial basis presents varied programs that offer information and increase understanding. Directing the growth of educational television are four national organizations: Joint Council on Educational Television, Washington, D. C.; Committee on Television of the American Council on Education, Washington, D. C.; National Association of Educational Broadcasters, Urbana, Illinois; Educational Television and Radio Center, Ann Arbor, Michigan. The latter Center is building support for educational television by disseminating information about ETV and by obtaining financial support. By 1968 the Center hopes to include national live networks with a total of 100 stations linked together in a national network. In a brochure recently published, *Educational Television Today*, the activities of the Center are described with special emphasis given to its major function, the program service. Other publications may be secured by addressing: Educational Television and Radio Center, 2320 Washtenaw Avenue, Ann Arbor, Michigan.

In its *Bulletin* of June 30, 1958, Social Legislation Information gives an excellent review of the federal budgeting process, clarifying plans, policies and procedures for the fiscal year beginning July 1, 1958. (25¢ per copy). The *Bulletin*, which is issued by a nonprofit association supported by contributions and subscriptions, reports impartially on federal social legislation and the activities of federal agencies in the areas of health, education, welfare, housing, employment and recreation. For those particularly interested in the Department of Health, Education and Welfare, the January issue will reproduce the portions of the Budget document relating to this Department; paper-bound, 100 pages; price, $2. Address: 1346 Connecticut Avenue, N.W., Washington 6, D. C.

Programs

A recent study by the Office of Education, Department of Health, Education and Welfare, reveals that modern mechanical and electronic devices are promoting a revolution in the teaching of modern foreign languages. Language laboratories have doubled within the last two years so that at present more than 200 colleges and universities and nearly 50 high schools have these special rooms.

The laboratories usually are equipped with semi-soundproof booths where individual students listen to tape-recorded lessons through earphones. At carefully spaced pauses on the tape, they speak into the microphone, recording imitations and answering questions. The survey, which was conducted in cooperation with the Modern Language Association of America, was directed by Marjorie C. Johnston, Office of Education, specialist for foreign languages.

The new graduate degree program in Language Models and Logical Design (see Trends) at the University of Michigan is open to students who have completed a Bachelor's degree or equivalent in a related area, as mathematics, electrical engineering, philosophy, psychology, speech or linguistics, and who have completed courses in mathematics through integral calculus, one year of physics and a basic course in circuits. The Master's degree requires a minimum of 30 semester hours beyond the Bachelor's degree, including specific courses in electrical engineering, philosophy and mathematics and other courses which represent an integrated program of study oriented toward some aspect of Language Models and Logical Design.

The doctoral degree is planned for those who show a high degree of competence in this field. Individual study plans for training at this level are arranged according to the needs and interests of the student. In addition, certain advanced courses in philosophy, mathematics and electrical engineering are required. For the preliminary examinations, the student should have as a major

a minimum of 20 semester hours in one of the areas of mathematics, philosophy, electrical engineering, psychology, speech and linguistics; and for minors, a minimum of 10 semester hours in two of these areas. At least one of the three areas (major and minor) must be philosophy, psychology, speech or linguistics.

The John Hay Whitney Foundation is announcing its annual Opportunity Fellowships for 1959-1960. The purpose of the awards is to offer opportunity for special experience or advanced study of outstanding citizens of the United States who have given evidence of special ability and who have been unable to develop their talents because of arbitrary barriers, such as racial or cultural background or region of residence. Awards have been made to the following groups: Negroes, Spanish-Americans, Chinese- and Japanese-Americans, American Indians, residents of the Virgin Islands, Puerto Rico, Hawaii, Guam, Alaska, Samoa and the Appalachian Mountain Area. Applicants must show evidence of superior promise, should be between the ages of 22 and 35 and should have completed undergraduate college education. Awards are for a full year of work and may be renewed in special cases; stipend ranges from $1000 to $3000, depending on project and financial need of the student. Application must be made by November 30 to Opportunity Fellowships, John Hay Whitney Foundation, 630 Fifth Avenue, New York 20, New York.

The Office of Vocational Rehabilitation, Department of Health, Education and Welfare, has awarded a research grant to the Speech Clinic, University of Pittsburgh. The grant, which will be under the direction of George Shames and Jack Matthews, will be used to study the development of audible scales for measuring nasal voice quality in adults. The end purpose of the research is to study the relationships among nasality, articulatory proficiency and intelligibility in the speech of individuals with cleft palate.

Parents, teachers and children have responded enthusiastically to a speech improvement program carried out in the Wauwatosa, Wisconsin, kindergartens. The speech therapist spends 20 minutes weekly with each group and then gives the regular teacher an outline and materials with which to continue the work. Important gains are achieved in phonics and in public relations.

The therapists in Philadelphia are working constructively to establish good public relations within their own group and with the classroom teachers. One phase of the Speech Improvement program is a Word of the Week project which has been started in many schools where a large proportion of the pupils who are not enrolled in speech classes need assistance with some speech errors. The speech correctionist, who serves as a resource person, prepares for the classroom teachers a list of words and suggestions for correcting the errors. Every teacher in the school emphasizes the same word for one week.

Guides for the use of speech therapists in the Philadelphia Public Schools have been prepared by six committees which met at widely spaced intervals. Between meetings the materials presented at the last session were evaluated, books were consulted and further preparation was made for the next meeting. As each section was completed the chairman presented it to the entire group of therapists. All sections are now in use in tentative form.

Meetings

Acoustical Society of America; Chicago, Illinois; November 20-22, 1958.

American Speech and Hearing Association; Hotel New Yorker, New York; November 17-19, 1958.

International Conference on Social Work; Tokyo, Japan; November 30-December 6, 1958.

International Council for Exceptional Children, Regional Meeting; Denver, Colorado; November 5-8, 1958.

National Society for Crippled Children and Adults, Inc.; Statler-Hilton Hotel, Dallas, Texas; November 16-20, 1958.

Pan-Pacific Conference on Rehabilitation; Sydney, Australia; November 10-14, 1958. Address: Donald Wilson, International Society for Welfare of Cripples.

Speech Association of America; Conrad Hilton Hotel, Chicago, Illinois; December 29-31, 1958.

Western Speech Association; Salt Lake City, Utah; November 27-29, 1958.

Materials

Wilbert Pronovost's monograph 'Methods of Developing the Speaking Voice in the Elementary Schools' will be reprinted in his book *Teaching, Speaking and Listening in the Elementary Schools*, which will be available in January 1959. The book will contain chapters on Talks, Discussions, Voice, Articulation, Choral Speaking, Dramatic Activities and the Speech and Hearing Handicapped. Longmans, Green and Company is the publisher.

'A Child's Road to Independence' is a series of film strips and slides for parents of crippled children produced by the National Society for Crippled Children and Adults, Inc., and sponsored under a grant from the national sorority Zeta Tau Alpha. The series includes five subjects concerning the care and treatment of crippled youngsters and can be shown independently or in sets. An explanatory narrative script accompanies each set. Subjects are: 'What Parents Should Know about Cerebral Palsy'; 'Living Is Learning'; 'Up on His Feet'; 'Fingers, Families, and Fun'; 'The Teenager's Gateway to Independence.' Time, two hours and 15 minutes. On loan at $2 each. May be purchased. Address: 11 S. LaSalle Street, Chicago 3, Illinois.

The American Association on Mental Deficiency has published a *Ten-Year Index* of articles which have appeared in the *American Journal of Mental Deficiency* from July 1947 to April 1957. The *Index*, which has been prepared by Marion F. Mowry, comprises three sections: A General Index listed by discipline, a Subject Index and an Author Index. Address: Project News, AAMD, 1601 West Broad Street, Columbus, Ohio.

Edgar Dale and Donald Reichart in the *Bibliography of Vocabulary Studies*, Revised Edition, 1957, have arranged vocabulary references in 26 classifications, including frequency of words, spelling, specific vocabularies, reading, testing and word difficulties. The author index includes 2047 authors, and the titles number 2601. Address: Office of Publications, The Ohio State University, Columbus 10, Ohio. Price, $2.00.

The American Council on Education, through its Office of Statistical Information and Research, prints an information sheet, *Report on Questionnaire*, which lists the subjects, the circulator and available summaries of questionnaires. These reports, which, as of June 19, 1958, number nine issues, gladden the reader by this introductory underlined remark: 'It is assumed that those who ask others to contribute their time and talent to the completion of questionnaires accept, in return, the obligation to make available to those interested a summary of the results.' Address: 1785 Massachusetts Avenue, N.W., Washington 6, D. C.

Copies of issues since 1956 of *Progress in Health Services*, a publication of Health Information Foundation, are available from the Foundation as long as the supply lasts. Address: 420 Lexington Avenue, New York 17, New York.

'Examining the Oral Speech Mechanism' is a 25-minute color motion picture, 16 mm., prepared primarily for orienting the beginning speech pathology and audiology student about this mechanism as it relates to speech problems. The film demonstrates how an oral mechanism examination might be administered effectively when the objective is seeking out physical problems which may affect speech. Illustrations of the types of information sought by performing this examination and many of the reasons for seeking such information are presented. The film is largely definitional, pointing up graphically all the parts of the mechanism (the lips, the teeth and jaws, the tongue, the hard palate, the velum and the fauces) and many of the deviations which may occur in any one of them. Executed by William E. Castle with Frederic L. Darley serving as technical consultant. Available through the Bureau of Audio-Visual Instruction, Extension Division, State University of Iowa. Rental, $4.50; sale price, $200.

The Office of the Supervisor of Special Education, Mississippi State Department of Education, has prepared *Summary Reports* from the Institute on Material, Methods and Techniques in Teaching Handicapped Children, offered through a grant by United Cerebral Palsy, Inc., in August 1957. Some helpful methods and materials are suggested in the reports which are divided into three sections: Suggested Materials and Methods

for Certain Curriculum Areas in Teaching Educable Mentally Retarded Children; Practical Recreational Activities for the Physically Handicapped Child; Methods of Speech Improvement for the Classroom Teacher. An article on 'Scouting for Mentally Retarded and Handicapped Boys' by Raymond Owens, Deputy Regional Executive, Boy Scouts of America, appears in the Appendix. Available through D. C. Trexler, Department of Conference and Institutes, University Extension, The University of Mississippi, Oxford, Mississippi.

A dramatic documentary film, 'Reach for Tomorrow,' portrays the rehabilitation of five crippled children and adults through Easter Seals services. Henry Fonda, star of stage and screen, is the narrator. The film is slanted particularly to the lay public; but special groups in health, service, education, and medicine would be interested. Available for purchase at $100; for rental at $3.50; for television without charge. Address: Miss Catherine Bauer, Director of Information, National Society for Crippled Children and Adults, Inc., 11 South La Salle Street, Chicago 3, Illinois.

'Listen and Learn' is a series of language travel records in French, Spanish, Italian and German, priced at $4.95 per set. Dual-language recording, both English and foreign language, is one of the features: English is spoken; the foreign language translation is given; a pause occurs in which the learner records the foreign sentence. Each set includes three 10-inch 33 1/3 rpm records, six sides, pure vinyl; 1 1/2 hours of speech with 812 foreign phrases and sentences selected to fit travel situations. A manual of 128 pages, a sound transcription and an introduction accompany each set. The manual contains a complete 1500-entry index to everything on the records. Address: Dover Publications, Inc., 920 Broadway, New York 10, N. Y.

A special edition of the *Journal of the American Medical Association* is devoted to 'Principles of Medical Ethics,' prepared by the Judicial Council. Published June 7, 1958.

Guidance for Parents and Therapists in the Development of Speech in Cerebral Palsied and Other Children with Speech Difficulties is a 23-page pamphlet prepared in English and Hindi by Shri Ramesh K. Oza, O.T.D., and sponsored by the All India Ocupational Therapists' Association. By means of a series of black and white sketches, the author correlates the feeding of the child to his speech movements, especially chewing, sucking, blowing and swallowing. Included are several pages of pertinent suggestions to parents and therapists. The booklet is graphic to assist parents. Address: Ramkrishua P. Press, Rukmini Nivas, Dadar, Bombay 14, India.

The American Cancer Society has recently published a booklet on the development of speech for the laryngectomized person called *Your New Voice*. William F. Waldrop, M.A., Speech and Hearing Rehabilitation Service, St. Luke's Hospital, Chicago, Illinois, and Marie A. Gould, former Adjustment Instructor in Chicago Public Schools, are co-authors. Address: American Cancer Society, Illinois Division, Inc., 139 North Clark Street, Chicago 2, Illinois.

In order to help parents become more acutely aware of the educational aspects of deafness and the potentialities of their children with impaired hearing, the Conference of Executives of American Schools for the Deaf has arranged for periodic distribution of packets of reprints on the deaf. Folder No. 2, 1958, contains reprints of the following: 'Speech and Hearing Problems of the Young Deaf Child' by Leroy D. Hedgecock; 'Vocational Education in Residential Schools for the Deaf' by Harry W. Reid; 'Vocational Training for the Deaf' by Florence A. Waters; and 'A Deaf Boy Grows Up in the S.S.A.' by Powrie Vaux Doctor. Packet sells for 50 cents; discount of 10 per cent when 25 or more are purchased. Address: The American Annals of the Deaf, Gallaudet College, Washington 2, D. C.

George Bugbee's article 'Comments on Government Medicine in England and France,' which was published originally in *The Journal of the American Medical Association*, March 22, 1958, v. 166, has been printed in brochure form. The Health Information Foundation, of which Mr. Bugbee is President, was organized in 1950 and has progressive leaders of more than

200 drug, pharmaceutical, chemical and allied industries. They are serving the public by studying many of the vital problems related to health in the United States, as improvement of voluntary health insurance, problems of Americans over 65 and opinions of the public toward health services. Address: 420 Lexington Avenue, New York 17, New York.

The New Jersey Study on *Evaluation and Education of the Cerebral Palsied Child*, by Hopkins, Bice and Colton with an introduction by Winthrop Morgan Phelps, has had its second printing. Available for $1.60; 2-9 copies, 10 per cent discount; 10 or more copies, 20 per cent discount. Address: Council for Exceptional Children, 1201 Sixteenth Street, N.W., Washington 6, D. C.

An annotated directory of *Films on the Handicapped* by Jerome H. Rothstein and Thomas O'Connor may be secured with annual supplements for 1956, 1957 and 1958. Priced at $1.00 for first directory and $1.50 for supplements. Address: Council for Exceptional Children, 1201 Sixteenth Street, N.W., Washington 6, D. C.

A *Manual for the Aphasic Patient* by Mary C. Longerich, Ph.D., has been published by The Macmillan Company. Part I contains helpful information for the patient's family; Part II offers specific directions to the speech therapist; Part III includes drills for receptive and expressive aphasia. The exercises are printed on perforated punched paper so that the patient can compile his own handbook.

Beltone Hearing Aid Company is advertising the Beltone 14-A Diagnostic Audiometer, which features transistorized speech circuit and simplified loudness balance control. According to Beltone, this unit is the only pure-tone and speech audiometer having simplified loudness balance control with which it is possible to perform accurate alternate loudness balance binaural recruitment tests. Priced at $595, f.o.b. Chicago. Accessories include double air conduction receivers, bone conduction receiver, microphone, monitor phone, patient's button signal and switch, dust cover, instruction manual and audiogram blanks. Address: Beltone Hearing Company, 2900 West 36th Street, Chicago, Illinois.

How to Conduct a Self-Survey of Special Education Needs is a booklet prepared at the Institute for Research on Exceptional Children, University of Illinois, to facilitate the teacher's evaluation of the special program offered in the school system. Forty-eight pages; $1 per copy. Address: Council for Exceptional Children, 1201 Sixteenth Street, N.W., Washington 6, D. C.

The film 'The Beloved Child' presents a discussion of medical aspects, including a physical examination, of two mentally retarded children, a mongoloid and brain injured child. It also demonstrates the integration of special classes within the Milwaukee school system and the role played by the parent group. Time, 17 minutes; rental, transportation only. Address: Milwaukee County ARC, 1426 W. State Street, Milwaukee 3, Wisconsin.

The Department of Navy has produced two films that point out the hazards associated with high noise levels produced by jet aircraft and other noisy equipment found on shore and aboard ship: 'Medical Aspects of High Intensity Noise: General Effects' (MN 9318-a); and 'Medical Aspects of High Intensity Noise: Ear Defense' (MN 9318-c). These films describe the nature of noise and the psychological and physiological effects. According to reports, the presentation of the problem is dramatic and meaningful and can be recommended to any audience interested in the basic effects involved in the noise problem. 16mm., black and white, sound, 21 minutes each. Address: Audio Visual Training Section, Bureau of Medicine and Surgery, Department of Navy, Washington 25, D. C.

The Volta Bureau has a new listing of reprints concerning audiometry, hearing aids, hearing disorders, auditory training and lip reading available at nominal cost. Also list of records for auditory training. Address: 1537-35th Street, N.W., Washington 7, D. C.

Ambco Inc., 122 West Washington Blvd., Los Angeles 7, California, has announced a new line of auditory training amplifiers and battery-operated screening audiometers.

A booklet entitled *Hearing Tests for School Children and How to Conduct Them* has been published by the Audiometer Division, Beltone Hearing Aid Company, 2900 West 36th Street, Chicago, Illinois.

Natural Language for Deaf Children by Mildred A. Groht, Ph.D., is now available from The Volta Bureau, 1537-35th Street, N.W., Washington 7, D. C. Price, $5.50.

The University of Connecticut Speech and Hearing Clinic, in conjunction with the Newington Hospital for Crippled Children, has completed a film describing use of the Bobath method with cerebral palsied children. The title of the film is 'Bobath Method of Cerebral Palsy Habilitation—Theoretical and Therapeutic Rationale.' The film is in three parts: (1) Normal Sequential Development of Reflexive Activity, (2) Examples of General Treatment Based on Inhibition and Suppression of Tonic Reflexes, (3) Specific Bobath Technique as Applied to Speech Therapy. The Bobaths have reviewed the film and have suggested slight additions. The film was produced and directed by Edward Mysak, Ph.D., Director of Speech Habilitation at the Newington Hospital. Sound and color, 23 minutes. Address: Hilary Stiff, Director of Photography, Newington Hospital for Crippled Children, Newington, Connecticut.

The announcement of a second edition of the Basic Word-Making Card Set of 412 picture cards for articulation and language training also introduces a *Word-Making Methods Book*, which contains over 150 suggestions of ways in which the Basic Word-Making cards may be adapted for use by speech and hearing therapists and special education teachers. Cards, per set, $6.95; book, $2.50 each. Address: Word Making Productions, P. O. Box 305, Salt Lake City 10, Utah.

Directors of research projects will be interested to know that Gilbert R. Barnhart has been appointed Chief of the Division of Research Grants and Demonstrations of the Office of Vocational Rehabilitation, as announced by Mary E. Switzer, Director. Mr. Barnhart, who holds M.A., M.P.A. and Ph.D. degrees from Harvard University, has been Executive Director of the Citizens Advisory Committee to the City Council of Cambridge, Massachusetts, engaged in research and planning for urban renewal. Between 1950 and 1955, Mr. Barnhart was in charge of programs for the Housing and Home Finance Agency, promoting housing and building code standards. Later, he became director of the Demonstration Program of the agency's Urban Renewal Administration, in charge of grants to develop and publicize new and improved techniques of urban renewal.

In his new position, Mr. Barnhart will be responsible for administering the grants made to public and private organizations by the Office of Vocational Rehabilitation in support of research and demonstration projects in disability problems, as well as the program of research fellowships for the development of competent research workers in professional fields that contribute to the vocational rehabilitation of disabled persons.

Another appointment from the Office of Vocational Rehabilitation is that of Samuel E. Martz as Executive Officer. Before joining OVR, Mr. Martz was a specialist in manpower utilization in the Department of Defense and Budget Examiner with the Bureau of the Budget, and he served also with the United Nations Relief and Rehabilitation Administration.

Mr. D. H. Dabelstein will continue as assistant director of OVR.

An Institute on the Psycho-Educational Evaluation of Children with Orthopedic and Neurological Handicaps is scheduled for November 21 and 22, 1958, at the Home for Crippled Children, under the joint sponsorship of the Home for Crippled Children and the Departments of Special Education, Speech and Psychology of the University of Pittsburgh. Drs. Harry V. Bice and William M. Cruickshank will demonstrate and interpret findings, and the discussants will include Drs. Jack Matthews, George Fahey, Catharine McClure, Jack Birch, Kathryn Dice and Everett Campbell as moderator.

The Institute is open to teachers, psychologists, physicians, speech therapists, nurses and other professional persons. Registration information may be obtained from Dr. Everett Campbell at the Home for Crippled Children, 1426 Denniston Avenue, Pittsburgh 17, Pennsylvania.

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After 38 years of continuous publication, *Talk* magazine has been discontinued. It will be replaced by another journal: *Logos* —The Bulletin of the National Hospital for Speech Disorders. The new periodical will be devoted exclusively to the publication of scientific papers in the entire field of human communication. Experimental, theoretical and clinical papers on language, speech, voice, hearing, psychology, psychiatry, neurology and semantics will be included. It is intended that no restrictive editorial policy should impose any limitations on the subject matter to be presented. The first issue of *Logos* was expected in October 1958. Subsequent issues are planned on a semiannual basis, one each spring and autumn. All communications regarding submission of papers, reprints, subscriptions or other inquiries should be addressed to the Editor, *Logos*, The National Hospital for Speech Disorders, 61 Irving Place, New York 3, New York.

The Office of the Journal of Speech and Hearing Disorders has moved into the new Speech, Drama and Music building of Los Angeles State College at 5151 Murphy Street, Los Angeles 32, California. Mrs. Claudia Simpson Fahringer, a speech and hearing student at Los Angeles State College, will join the Journal staff as a part time secretary and assistant to the Editor. ASHA members in the Los Angeles area were invited to attend an Open House in October and the invitation is extended to other members who might be visiting in California at other times.

Announcement to Program Chairmen

The Editor would like to suggest that the chairmen of the various sections on Speech and Hearing at the 1958 convention be on the alert to note such contributions by speakers which might be worthy of publication in this *Journal*. If a special check or comment is made in your printed program at the time of the meeting, it will facilitate matters when you receive a form after the convention on which you will be requested to record your recommendations. You may, also, at the time of the meeting, suggest to certain speakers, who, in your opinion, have made important contributions to the program, that they submit their manuscripts for consideration to the Editorial staff of the *Journal*. Your cooperation will be appreciated.

MARY HUBER, *Editor*

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